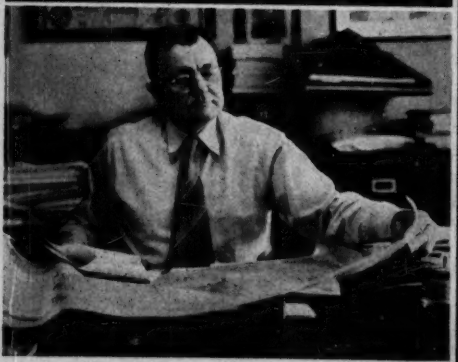
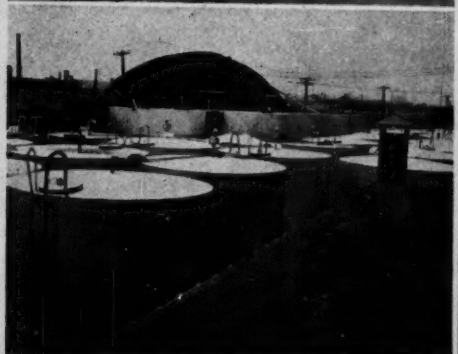
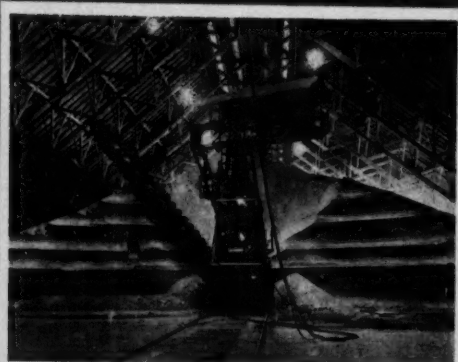


Chemical Week—

August 15, 1953



Chemical industry, belatedly, seeks resurgent neighbors to survive p. 38

What's new? Two new systems lead the way to more efficient use of energy p. 45

How does John Hollingshead plan to expand? p. 53

How does Charles Holt plan to shape up Philadelphia? p. 61

How many more days are numbered for the old-fashioned nonelectrolytic process? p. 70



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Chemical Week

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August 15, 1953 • Chemical Week

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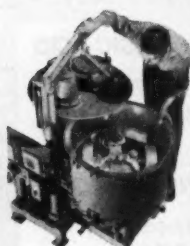
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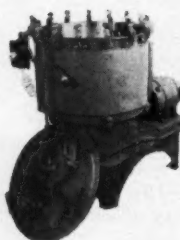
Why not submit your mixing problems to us for analysis? No obligation, of course.

... here's how we solved some typically different mixing problems:



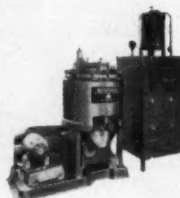
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OPINION....

Too Cheap Plastics

TO THE EDITOR: I would like to compliment you on your editorial "A Lot Worse, a Little Cheaper" (July 25).

It sums up my own experience here and I wager that of many another.

S. MCCREADY
Central District Manager
Canadian Chemical Co., Ltd.
Toronto, Canada

Barnum's Theory

TO THE EDITOR: May I express my congratulations to you on your editorial "A Lot Worse, a Little Cheaper" (July 25).

I am only disappointed that it was not placed in a more conspicuous location. Too, I am sorry that you beat me to writing such a summary, for the situation, in the case of styrene, is realistically a rape of the uninformed American public—creating disgruntled parents, unhappy children and a safety hazard, not to mention a severe blow to the growing plastics industry.

In my estimation, the situation could be immeasurably improved through a little more public education—I'd like to see your editorial carried on the front page of a few newspapers.

Public education through good factual articles on plastics—including such practical information as abuse resistance versus type and cost of resin for a given item would be of value. As I recall, *Life* magazine had such a discussion on the various synthetic fibers... with their weak and strong features... and corresponding relative cost. Why wouldn't this sort of thing be equally effective for such plastic articles as toys, utensils, etc.?

It would also seem that through the medium of widely published factual practical articles, the public could be educated to their own power... a power they can exercise merely by asking "What is this made of?"... If the public does not know... they will perpetuate Barnum's Theory and receive "a lot worse for a little more."

People are willing to pay if they

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 363 W. 42nd St., New York 36, N.Y.



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MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

OPINION

know what they are getting is good; therefore it is a downright shame to see the intricate toys on the market—toys that could be molded from plastic at a fair price and which would be prohibitive in metal—made from the wrong resin, or made by an inferior molding procedure, and resulting in failure to the public and failure to the plastics industry.

GEORGE W. WRIGHT
Wellesley Hills, Mass.

Here Ich, There Ich

TO THE EDITOR: Re "Fish taking sleeping pills?" (CW Newsletter, July 25):

. . . Mickey fin? Ichthyically yours . . .

G. D. WEAVER
Advertising Manager
Acheson Colloids Co.
Port Huron, Mich.

Likes Aerosols

TO THE EDITOR: That's a splendid report on the aerosol industry (July 18) . . .

P. D. TORPIN
Sales Manager
McLaughlin Gormley King Co.
Minneapolis, Minn.

Tax-Free, Tax-Payers

TO THE EDITOR: . . . I enjoyed reading your news article "Sponsored Research: Building on a Boom" (July 25) . . . It is always interesting to see what competition is doing. However, we wonder if your readers might not have been interested in a picture rounded out by the inclusion of the more successful tax-paying independent research organizations, such as ours.

The tax-paying independent research institutes certainly have participated in the "research boom." Inasmuch as they do the same work on similar terms and conditions as do the non-profit organizations you list, it may appear that . . . you might have presented a more rounded picture had you included corresponding data for our, and similar, tax-paying sponsored research organizations.

By the way, it has never been understandable to me why so many business magazines give such a tremendous amount of free publicity to the tax-exempt research institutes . . . while the tax-paying organizations which do the same work, are not so favored . . .

Nonetheless, let me compliment you on the splendid job you are



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OPINION

doing with CW. I read very enthusiastically every issue from cover to cover, and have found this most rewarding . . .

JOHAN BJORKSTEN
President

Bjorksten Research Laboratories
Madison, Wis.

The round-up we published was indeed confined to the business volume enjoyed by the non-profit research institutes.

We have sought, on several occasions, comparable figures on tax-paying research organizations. Unfortunately, however, most of them—unlike Reader Bjorksten—would not reveal the pertinent figures.—Ed.

Strong Points Too

TO THE EDITOR: We would like to compliment you on your excellent news article, "Matter of Repetition" (July 25). . . .

In this report on the reproduction field you point to the disadvantages of the blueprint process. We would like to comment on some of the advantages.

The paper for blueprints is customarily 50% rag base stock. The physical strength of this premium paper makes the prints stand up better in the shop or in the field.

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J. E. DIETZGEN
President
Eugene Dietzgen Co.
Chicago, Ill.

DATES AHEAD

American Institute of Chemical Engrs., Fairmont and Mark Hopkins Hotels, San Francisco, Calif., Sept. 13-16.

The Electrochemical Society, Ocean Terrace Hotel, Wrightsville Beach, N.C., Sept. 13-16.

Assn. of National Advertisers, annual meeting, Hotel Drake, Chicago, Ill., Sept. 21-23.

American Standards Assn., 35th annual meeting, Waldorf-Astoria hotel, New York, N.Y., Oct. 19-21.

National Safety Council, 41st National Safety Congress and Exposition, Chicago, Ill., Oct. 19-23.

American Institute of Chem. Engrs., symposium on management, new materials of construction and solids handling, Hotel New Yorker, New York, N.Y., Oct. 22.

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MINERAL FILLERS

NEWSLETTER

Now it's official. It was quite evident in view of recently authorized titanium metal expansion (see p. 16) that the Office of Defense Mobilization had raised its sights on military needs. Late last week it announced a new goal—to be attained by 1956—of 25,000 tons yearly output. That's 3,000 tons over currently planned capacity, and the Defense Materials Procurement Agency is authorized to seek producers to do the job.

Big push behind the increase: need for more jet engines.

Krebiozen, the controversial "cancer drug" (CW, May 23) that is said to be derived from the blood vessels of a horse, seems to have become a kind of "sacred cow" in Illinois. That it's foolhardy to speak disrespectfully of that substance is demonstrated by the case of George D. Stoddard: last spring he sneered at the "non-existent white powder," is now out of his job as president of the University of Illinois.

Actually, while Stoddard's action to sweep krebiozen research out of the university's laboratories no doubt contributed to his demise, probably the big reason behind the trustees' no-confidence vote was that he was on bad terms with some of the state legislators, who control the school's purse strings.

Adversity makes strange bedfellows. Misco Precision Casting Co., tired of "feast or famine" steel business, wanted to diversify into a more stable line. Iowa Soap Co., dragged into insolvency by obsolete equipment and competition from synthetic detergents, needed reorganization. Last week a federal district judge in Iowa approved a merger of the two.

Riding the trend to agricultural chemicals, American Cyanamid—no newcomer to the field, certainly—is nevertheless consolidating its research on these products in a new Agricultural Chemicals Research Laboratory at Stamford, Conn. It will be ready next month.

In a process advance designed to overcome the relatively poor dyeability of synthetic fibers, Carbide and Carbon is now "dope-dyeing" dynel fiber—i.e., the fiber has color in it as it comes out of the spinnerets. The colored fiber will sell for \$1.50 a pound, against \$1.28 for the regular fiber. Six to nine standard colors will be supplied, and customers can get special shades on 25,000-pound orders. Dynel will be the first fiber besides acetate dyed in this way.

Carbide is also pilot-planting a dynel fiber with "built-in" anti-static. The added chemical changes dye characteristics and other properties, so the company is proceeding cautiously on its introduction.

Constantly besetting pharmaceutical concerns is the problem of brand substitution (cf. CW Newsletter, May 9). Ciba Pharmaceutical late last week wrote finis to an intensive, year-long campaign against makers of products having colors and shapes similar to its distinctive tablets. It

had prescriptions filled in drugstores throughout the country, analyzed the materials, made strong protests to manufacturers where fraudulent substitution was evident, threatened to sue.

Ciba reports success. Many of the offending firms have withdrawn imitative products, surrendered tablet dies and punches, or agreed to change color or shape of their products.

More pharmaceutical shenanigans—this time smuggling antibiotics into Mexico. The Office of International Trade last week cracked down on three-time-offender Botica Hidalgo, issued a warning to U. S. firms not to help any company in OIT's "doghouse" to get export licenses or commodities for export without first getting OIT's specific permission.

Learning about the other fellow's job is Parke, Davis & Co.'s aim for all of its 4,000 employees. Eight groups of 15 workers each will take the daily four-hour tour, will learn about research, manufacturing and administration. Tours started last Monday, will continue six weeks.

Here's what's behind recent newspaper stories on Monsanto's tax difficulties: A technicality in the federal tax laws—repealed by Congress in 1951—differentiated between different kinds of dollar bills Monsanto could have spent to rebuild its Texas City plant—i.e., it treated differently dollar bills received from insurance proceeds and dollar bills in the company's own treasury (which were eventually replaceable with insurance money). Monsanto devised a complicated procedure that it thought would keep within the letter of the law; and after waiting a month and a half for a ruling on its validity, it asked Secretary of the Treasury John Snyder to expedite a decision.

It would appear as if the insurance firms tried to use the tax technicality as a club to force Monsanto to accept a lower settlement fast—and thus avoid the pitfalls of the now-obsolete legal provision.

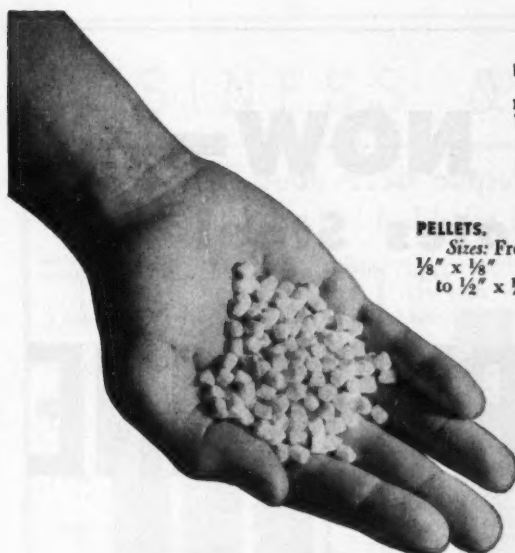
In another industry-government imbroglio Carbide and Carbon is in the middle as the AFL Atomic Trades Council at Oak Ridge, Tenn., presses its case before the newly reorganized Atomic Energy Labor-Management Relations panel, which is still barely on its feet. Headed by venerable Cyrus Ching, the panel must decide whether Carbide should give the 3,500 AFL craftsmen the 10½¢/hour it seeks, or the 5¢ increase the company granted last spring to United Gas, Coke & Chemical Workers (CIO) at another Oak Ridge plant.

It's a crucial test of the Eisenhower administration's ability to cope with labor disputes. The argument flared into a two-day strike at research and isotope production units—first stoppage directly to affect actual atomic energy work.

How big is chlorophyll toothpaste? Part of the answer, at least, was spilled as a result of the current legal battle between Rystan and Colgate (CW Newsletter, Aug. 1). When the federal court in New York refused to dismiss Colgate's suit attacking the validity of Rystan's patent, Rystan struck back in the Kansas City district court, asking for an injunction against the "threatened infringement." In its complaint Rystan bared some revealing figures: it had received \$183,176.48 in royalties on over \$13 million net sales of Colgate's green toothpaste.

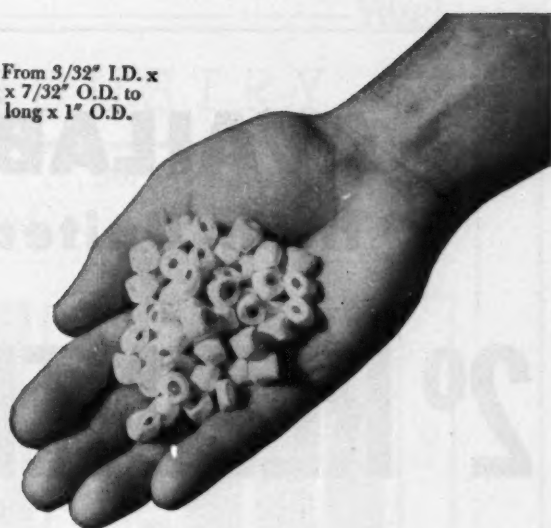
Colgate is wrathful over this disclosure of "strictly confidential" information, is asking the New York court for special damages.

... The Editors



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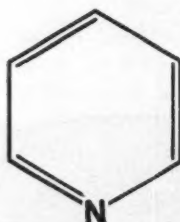
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PHYSICAL CHARACTERISTICS

Pyridine is more stable to oxidation than benzene, tends to undergo substitution rather than additions, but is not as easy as benzene to substitute.

Because pyridine is more resistant to the usual aromatic substitutions, bromination can be accomplished only in the vapor phase at about 300-degree temperature, and sulfonation and nitration can be effected only under forcing conditions; substitutions always occur in the beta position.

In degree of reactivity pyridine corresponds to nitrobenzene rather than benzene.

2° Refined Pyridine is well worth further study in your laboratory.

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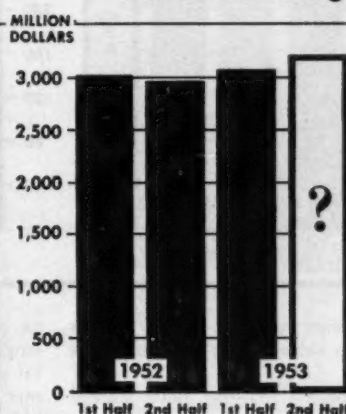
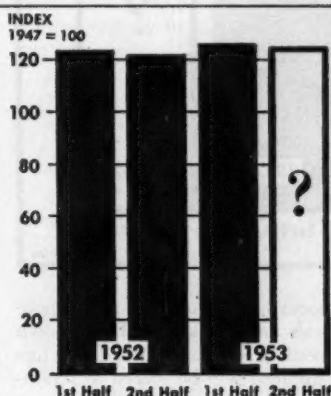
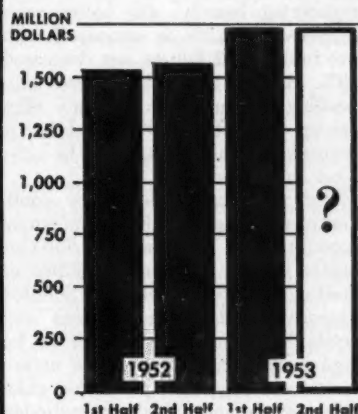
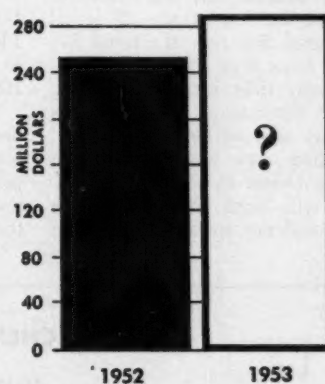
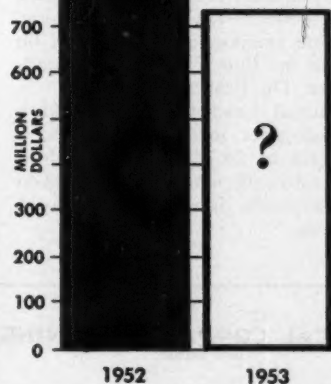
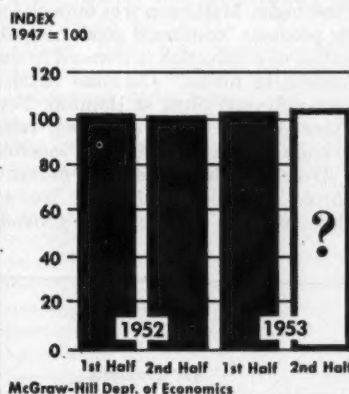
U.S.S. Coal Chemicals



UNITED STATES STEEL

3-1083-A

BUSINESS & INDUSTRY . . .

Sales are at peak ... so output**holds at high level...****...but inventories are heading****to all-time high...****So prices—already high—may weaken;****but exports are lower****...and imports****this year...****higher...**

Profits Rising, Prospects Pleasing

All along the line chemical sales scaled upward in the first six months of 1953. Early returns on 23 companies—from all sectors of the industry—attest to an upswing of over 15%.

Nets, still reflecting the leveling effect of excess profits taxes, are up less consistently, but in certain instances reveal startling percentile boosts over the first half of 1952. Commercial Solvents' 199.4% hike is tops; Monsanto's 184.2% rise runs a close second.

On the whole, companies selling to

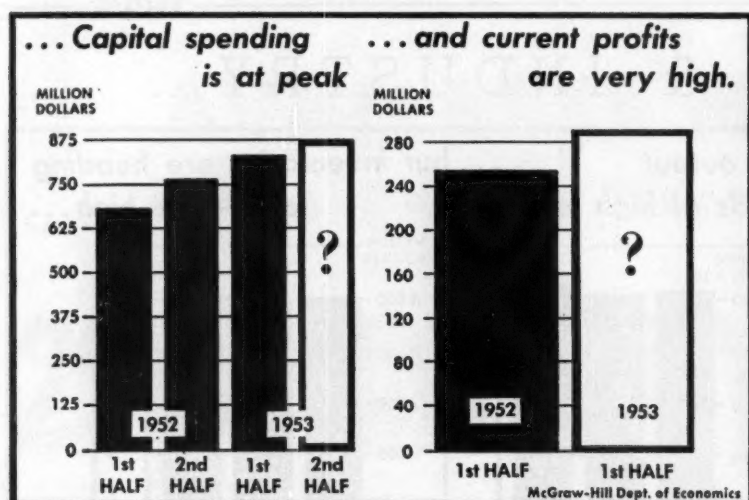
the steel, automotive, fertilizer, appliance and rubber industries found themselves in the driver's seat; commodities in such fields are in record demand. Plastics, from both production and sales angles, are driving ahead with ever-increasing momentum.

Total price structure throughout the industry was steadily maintained over the first half of the year. What weaknesses appeared (generally in fine chemicals, suffering from foreign competition) were counterbalanced

by price increases in sulfur, sulfuric acid, ammonium sulfate, benzene, and sodium phosphates.

Capital expansion continued as predicted (CW, Mar. 21) at a rapid clip. Latest estimates peg \$1.3 billion as the over-all investment by the chemical industry this year (compared with \$1.5 billion in 1952, \$1.3 billion in 1951).

What's Ahead: For the balance of the year, sales should roll along apace. Even with cessation of hostilities in Korea and a deferment of action on



tariff policies, few look for any serious decline in sales before the early part of 1954.

That profits margins have started to pick up is an encouraging sign. In 1952, strikes, controls and deflation in some sectors depressed over-all profit margins; the favorable effect of inventory profits in 1950 has tended to exaggerate the importance of actual profit figures. But now the trend has reversed. Even if pre-tax earnings decline in early 1954, after-tax earnings, with the elimination of the excess profits levy, should hold up.

Marketing may loom as a more pressing problem to some producers. Trouble will arise along with the growing tendency toward integration;

as processing companies put more emphasis on production of their own intermediate requirements, their former suppliers will be forced to scramble for other sales outlets.

Prospects in the immediate future bloom rosier for plastics—especially acrylics. Polyethylene should continue to be profitable at least for its original U.S. producers—Du Pont and Carbide. Fluorine compounds are counted on to pile up blue chips for Pennsalt, Hooker, Du Pont and Allied.

National Lead Co., turning in a first-half sales increase of 23.7%, a net gain of 24.7%, (and with lead prices strengthening) looks for even greater profits during the balance of the year.

The glitter is gone, both saleswise and profitwise, from some pharmaceuticals. Parke-Davis, a typical example, explains its early declines this year (22% drop in sales, 56% slack in net) as much on decreased antibiotic sales—chloromycetin—as on strikes. Merck & Co., Inc., with the profitable merger with Sharp & Dohme registering heavily, did better—sales dipped only 2.2% as compared with pro forma 1952 figures, net decreased 29%. Abbott and Pfizer were both heading upward: the former's sales are up 3%, net up 10%; the latter is registering a sales lift of close to 11%, a net increase of 26%.

But most companies voice confidence, regardless of their semiannual accountings. Commercial Solvents points to new ammonia facilities at Sterlington, La., expects its doubled capacity for nitrogen solutions and crystalline ammonium nitrate to be kept busy. Pennsalt's two new units—in Calvert City, Ky., producing chlorine, caustic, and anhydrous hydrogen chloride; and in Wyandotte, Mich., turning out ammonia—are due in within the next 30 days, should kick sales for the last half of 1953 up to all-time highs. Mathieson sees outlook for its products "continued good, no indication of a reduction in demand in the immediate future." Diamond Alkali's new polyvinyl plant at Houston, Tex. (now on trial run), will swell sales volume during the next few months.

Over-all, the chemical industry should continue—as it long has—to show its heels to industry in general.

CHEMICAL COMPANIES EARNINGS

(000 omitted)

	SALES			NET EARNINGS						
	1st Half 1953	1st Half 1952	% Change	1st Quar. 1953	1st Quar. 1952	2nd Quar. 1953	2nd Quar. 1952	1st Half 1953	1st Half 1952	% Change
Abbott Laboratories	\$ 44,202	\$ 42,918	3.0	\$ 26,204	\$ 25,035	\$ 17,997	\$ 17,662	\$ 4,000	\$ 4,443	-10.0
Allied Chem. & Dye	271,661	244,326	11.2	130,006	122,290	141,653	122,036	21,710	20,834	5.3
American Cyanamid	197,533	183,259	7.8	102,832	93,881	94,701	89,376	15,679	14,858	5.7
American Potash	11,289	6,604	31.0	5,354	4,309	5,915	4,296	1,663	917	15.9
Atlas Powder	29,366	25,627	14.6	14,271	12,312	15,095	13,315	1,556	890	74.8
Commercial Solvents	21,919	21,606	1.5	10,875	10,561	11,044	11,045	500	167	199.4
Diamond Alkali	43,440	38,738	12.1	21,573	20,502	21,867	18,237	3,588	2,845 (1)	20.8
Dow Chemical*	225,441	206,634	9.0	107,213	100,258	118,228	106,576	16,633	16,533	0.5
Du Pont	894,000	759,000	17.8	443,086	385,229	450,014	373,771	73,910	61,898	19.4
Freeport Sulphur	22,596	16,500	22.1	10,483	8,233	12,114	10,266	4,110	3,387	21.3
Hercules Powder	99,969	91,724	8.9	47,031	46,020	52,938	43,704	6,754	5,885	14.8
Hooker	19,111	18,782	1.8	9,300	9,619	9,958	9,305	1,730	1,569	10.3
Mathieson**	123,686	107,598	15.0	60,515	53,303	63,173	54,290	9,211	7,460	23.5
Monsanto	175,279	126,329	39.0	85,519	63,592	89,760	62,737	31,553	11,101	184.2
Nopco	10,243	8,936	14.6	4,950	4,653	5,283	4,283	494	383	29.0
Pennsalt	29,839	29,281	2.0	14,174	14,765	15,666	14,516	1,988	1,634	15.5
Pfizer	59,894	54,002	10.9	33,062	30,291	26,812	23,741	7,617	6,046	26.0
Pittsburgh Coke & Chem.	28,386	19,946	42.5	13,136	11,580	15,250	8,357	1,903	996	61.0
Rohm & Haas	61,977	52,712	17.6	29,822	26,232	32,155	26,479	3,383	2,553	32.5
Texas Gulf Sulphur	39,368	37,105	6.1	17,206	18,578	22,162	18,527	12,940	13,201	-2.0
Union Carbide & Carbon	528,155	452,875	16.6	260,696	231,360	267,459	221,515	52,479	46,440	13.0
Victor Chemical	21,219	16,763	26.6	10,672	8,645	10,548	8,110	1,652	1,239	31.8

* Fiscal year ends May 31.

** Mathieson figures for 1952 includes figures for Squibb.

(1) Restated to reflect the average federal income taxes and certain other items for 1952.

Round Trip for Ideas

Some ideas—like young seedlings—find it hard to catch on in the chemical industry. One such, the State Department's Foreign Exchange-Visitor Program is only beginning to take hold. But the chemical companies that have been in on the plan from the start are starting to speak up. And as they do—as to CW this week—the trend's bound to grow.

Actually much less involved than it's reputed to be, the plan operates under Public Law 402—the Smith-Mundt Act. It permits foreign technicians to work in the U.S. on a one-year visa, which may be extended upon application. When any company says it would like to take on foreign chemists or engineers, wheels start to grind. Accreditation must be obtained for the company involved; reputability is determined. When it's cleared the company gets a program number (1,600 have been issued in all industries to date) which permits it to obtain visitors' visas for its trainees. The man in question must provide his own transportation (round-trip) to the States; beyond that all expenses are borne by his benefactor.

Rules then are equally simple. Trainees are not allowed to apply for a change of immigration status while in this country; if they decide to stay they have to leave and re-enter after applying for immigration visas from abroad. Actually, though, the State Dept. does everything it can to discourage a change to permanent residence here, since the whole point of the program is to foster foreign understanding of the U.S., and the aim is frustrated if the trainee doesn't go home when his training here is over. But State Dept. officials admit they're often foiled; quite a few of the exchange visitors who come here like it so well they determine to stay at any cost.

Who's In: Chemical companies that have already applied for program numbers pretty generally cover the field. They include:

- Dewey & Almy, Cambridge, Mass., which brought over several chemists from foreign subsidiaries for training at the home office.

- Smith, Kline, & French, Philadelphia, which brought over two outstanding organic chemists to do research on potential therapeutic compounds—Dr. Wilhelm Gruber of Vienna University, and Dr. William Whaley of Great Britain.

- Metro Dyestuffs, West Warwick,

R.I., which turned to a young Indian, Dr. Tilak, brought him to the U.S. to study dye intermediates and to do independent research.

- Wallerstein Laboratories, New York, which took a young Mexican biologist into its plant to study bacteriological control of yeast, then passed him on to other companies for further study.

- Pittsburgh Coke & Chemical, which sponsored several German chemists, trained them to represent the company abroad.

What They Think: General Paint Corp., San Francisco, has a young Danish chemist, Eric Jespersen, now learning U.S. industrial techniques under the exchange program. His case is typical on two main scores: he himself is enthusiastic about the plan, and the company's wild about Jespersen.

Actually he came to the U.S. in November, 1952, under sponsorship of the American Scandinavian Foundation, found his way to General Paint's export department for training. So successful was the arrangement that last year, when the Foundation's sponsorship expired, the company picked up the tab; by last March, Jespersen was acting office manager, in charge of the export office.

The young Dane says industrial methods here are not really "radically different from those at home." He's gained most from seeing the attitude of Americans in the chemical industry. "They have a positive attitude that they can lick anything; officials here view a stack of work as something to be cleared away immediately." Europeans, on the other hand, shake a doleful head at a backlog of work. "It's there—too bad, but we can't do anything about it."

Further, Jespersen is impressed by the amount of responsibility American firms pass out to new employees. "You're a regular right away; your work is checked, but at least you're doing it by yourself. And you take it more seriously because you have that responsibility. In Denmark, you learn by watching."

As far as his new experiences go, Jespersen has had a little bit of everything—plant work, control laboratory duty, disbursing details, advertising, purchasing and financial experience. He's even been a party to top-rung policy planning, took part with the firm's vice-president in setting up General Paint's new Sao Paulo, Brazil,



JESPersen: He's learning most from attitudes.

plant. Speaking about it all, he's a walking sales talk for what the State Dept.'s Exchange Program hopes to do.

Hydrocarbon Research Co., New York, is charted on State Department files as having applied for authorization to bring over several German graduate students for training in petroleum research work. Emphasis is laid, not on turning out a finished engineer completely versed in American methods, but rather on his gaining an understanding of how Americans tackle their jobs. This is, of course, transmitted back to Germany.

Hydrocarbon's program is as yet not open to active recruiting; men brought over to the States so far have been hand-picked through direct contact with the firm's German office. They often use a six-month visit here as a planned break in their graduate training. They supply their own transportation; Hydrocarbon pays them minimum wages ("a living allowance"), which is tax exempt. Some one in each plant is generally assigned to expedite living arrangements, make the trainee feel at home.

Merck & Co., Rahway, N.J., has a slightly different angle on the plan. It sets up fellowships (at around \$6,000 a year) at various American universities, has brought over a number of foreign students to fill them.

But whatever the method, U.S. chemical companies that have taken the State Department up on its exchange visitor program have found the idea mutually beneficial. The gain in both directions is not on a production level—rather it's a reciprocal trade of understanding.

Ban on Barriers

At long last, the U.S. Food & Drug Administration has the factory inspection authority that the agency thought it had for the fifteen years preceding the Supreme Court's Cardiff decision (*CW*, Dec. 20).

President Eisenhower is expected to sign—possibly even before these words are printed—Rep. Charles A. Wolverton's bill (H.R. 5740) that specifically bestows on FDA the right to enter and inspect, "at reasonable times and within reasonable limits," with or without the consent of the owner or operator, "any factory, warehouse, or establishment in which food, drugs, devices, or cosmetics are manufactured, processed, packed, or held, for introduction into interstate commerce or are held after such introduction."

Although he's duly grateful that this bill "does restore a substantial amount of food and drug inspection powers," FDA Commissioner Charles W. Crawford registers one complaint. He's afraid the wording of the new law will scuttle FDA's right to check prescription and inventory records in retail drug stores to get evidence on illegal sale of sleeping pills.

FDA proposes no large-scale inspection crack-down as a result of the Wolverton bill's passage. On the contrary, due to the half-million-dollar cut in this year's appropriation (*CW*, Aug. 8), inspection activity will be somewhat less this fiscal year.

Weighty Infant

In an appendage to last week's (Aug. 8) titanium story, Crane Co. (Chicago) also fulfills an earlier (*CIW*, June 16, '51) surmise. Cramet, Inc., wholly owned Crane subsidiary, has just obtained a \$25-million DMPA contract for production of titanium sponge and ingots; and while most of initial output will be channeled into the Air Force, Crane will later siphon some of the titanium into its own valves and fittings manufacture.

But of greater import, this move marks the end of the government's freeze on titanium contracts. The government recently placed all production plans in abeyance pending revision of its expansion program by the Office of Defense Mobilization. Apparently, the revision is now complete.

The government will advance up to \$24,950,000 for construction and equipment. The plant, scheduled to start partial production in early 1955, is slated for full operation by early 1956. No location has been chosen

yet, but Crane is considering one state-owned site of 250 acres near Nashville (Tenn.), has taken an option on it.

Using a modification of the Kroll process, the new plant will have a capacity of 6,000 tons (titanium ingots) a year—biggest plant in the government-industry expansion program. The government, required by contract to buy 6,000 tons during five years of contract, has the option to buy up to 7,500 tons.

Together with contracted titanium sponge output from Du Pont and Titanium Metals, the new DMPA-Cramet agreement will bring total U.S. sponge capacity up to 13,200 tons a year by 1956—a healthy weight for any infant industry.

COMPANIES

Dow Chemical has received the go-ahead from the Texas Railroad Commission to store liquefied petroleum gas in the Stratton Ridge Salt Dome, Brazoria County, Tex. Two cavities over 1,000 feet deep will be created, fresh water from the Brazos river will be pumped through them, and the resultant saturated brine will then be processed at Dow's Freeport plant into chlorine and caustic.

Dow then plans to store propane, butane, other derivatives in the underground cavities, predicts that about 95% of it can be recovered and used successfully.

Rayonier, Inc. plans to start construction Aug. 15 of office buildings in Jesup, Ga., near the site of its \$25-million cellulose plant, still under construction.

Dow Chemical Co. has filed a registration statement with the Securities & Exchange Commission covering a proposed secondary offering of 400,000 shares of common stock with an aggregate value of \$14.4 million.

The shares are being sold as part of the estate of the late Grace A. Dow, widow of the company's founder. Company funds will not be aggrandized by the sale.

Chem Plant Builder

Helping to build chemical and petrochemical plants is the immediate background of Rocco Carmine Siciliano of Chicago, chosen last week by President Eisenhower to round out his top Labor Department staff as an assistant secretary of labor.

As labor relations supervisor for Procon, Inc., Siciliano has negotiated

labor contracts with AFL building trades unions for construction of oil and chemical processing plants. He's also on the labor committee of the National Constructors Association, whose members specialize in construction of oil, chemical and steel facilities.

EXPANSION

Vinyl Acetate Paints: Gelvatex Coatings Corp. will build a \$500,000 plant at Anaheim, Calif., to sextuple its production of vinyl acetate paints.

Monosodium Glutamate: International Minerals and Chemical Corp. has formally opened its \$1.5-million plant extension at San Jose, Calif., designed to double present production capacity of monosodium glutamate. Output will now exceed 8 million lbs./year.

Butadiene: Carbide and Carbon Chemicals Div. of Union Carbide and Carbon Corp. ceased production Aug. 1 at the plant it has been operating for the federal government in Louisville, Ky. Managerial officials report that the Reconstruction Finance Corp. advised Carbide that its supply of butadiene is sufficient at present, will permit placing the plant on a stand-by basis.

Vanadium Corp. of America has obtained permission from the Atomic Energy Commission to install a roaster for processing vanadium-uranium ores at its Naturita, Colo., mill. Production should get under way within three months.

The company has also exercised its option to purchase the mill at Durango, Colo., that it's been operating for the last five years under lease from the Commission.

Phosphates: Virginia-Carolina Chemical Corp. will build a million-dollar chemical plant near the atomic energy installations outside Cincinnati, O. Construction, on a five-acre site, will be directed by United Industrial Constructors. Presently anticipated products: phosphoric acid, sodium tripolyphosphate, other sodium phosphates.

Construction forces at the atomic-energy project near Paducah, Ky., have dropped below the 18,000 mark for the first time since the big national defense job was started in January, 1951. The first unit of the plant has now been in operation some six months, a second unit is still under construction, will be completed by late 1954.

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Because of the relatively large surface area exposed in carbon paper, the development of rancidity in the fatty component is not unusual. Such was the case with this well-known manufacturer. But, when Emersol 233 L.L.Elaine (Low-Linoleic) was substituted for the ordinary oleic acid in his formulation, odor complaints were reduced appreciably.

Whatever product you make, carbon paper or entirely unrelated products, the outstanding resistance to rancidity, color stability and oxidation stability of Emersol Oleic Acids can make your product better, stay better longer. This greater consumer appeal will make them readily accepted...easier to sell. Since they cost no more than competitive grades, next time...everytime...it will pay you to buy Emersol Elaines.

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Then you will be interested in this data showing the outstanding color stability of Emersol 221 as compared to competitive grades. The extra value of Emersol 233 is shown also.

To illustrate this fact in terms of end-product quality, actual propyl oleate esters were prepared under exacting conditions using a strong acid catalyst. The following colors were obtained after neutralization of the catalyst and filtering.

Propyl Oleates made with:	Lovibond Color (5/4" cell)
Emersol 221 Low Titer White Elaine	50 R
Competitive Double-Dist. Oleic "A"	60 R
Competitive Double-Dist. Oleic "B"	60 R
Competitive Double-Dist. Oleic "C"	Very dark
Emersol 233 L.L. Elaine	24 R



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Substitute For Security

This month will see the start of a new government agency, the Business Services Administration. It replaces the Korea-born National Production Authority.

The Department of Commerce, whose bailiwick includes both the old and new agencies, hopes to consolidate in the BSA these additional offices: Business Economics, Technical Services, Small Business, Distribution, Mobilization Program Coordination and Field Services. The extensiveness of operations by such a joint agency is open to question. The reason: money.

Commerce Secretary Sinclair Weeks had asked Congress for \$7.2 million for the combined program. The House of Representatives voted \$4 million; the Senate, \$5.5 million. Last week, in joint conference, a \$4.2-million figure was agreed upon. It's this amount that Commerce will have to work with.

The resulting agency won't have many more than 300 employees—not the almost-700 on which Weeks planned. And this 300 will include people from both NPA and the to-be-consolidated groups that are now separate agencies—the Office of Business Economics and the Office of Technical Services.

So far, at least, the brunt of reductions in force have been felt by NPA personnel.

Under civil service regulations, such reductions mean the start of a long chain of "bumpings." In this process, if a person's job is eliminated and there are similar jobs available, he may "bump" another civil servant—if this person has less seniority and other job retention rights.

On June 28, NPA had 1200 employees; it currently lists 400, with more cuts ahead. Such reductions, by themselves, would bring a wave of bumping; when one adds other agency reductions, the problems are compounded.

NPA, with its 24 specialized industry divisions, has many employees skilled in both these specific fields and in the job classifications recognized under civil service regulations.

Hence, when bumpings bring several candidates for a job in NPA's Chemical Division, for instance, its administrators have a job in stressing to civil service the unique qualifications which their employees possess. In this way they hope to keep, for example, a statistician who knows that muriatic is a common name for hydrochloric acid, rather than get someone

whose statistical experience is in the Fish and Wildlife Service.

Much of the over-all burden, and a lion's share of credit for the caliber of personnel which NPA has kept, goes to the agency's Deputy Administrator, Arthur K. O'Keefe*, on loan to the government without compensation since April, 1952, from U.S. Rubber's Naugatuck Chemical.

For Ken O'Keefe, his past six weeks as Deputy Administrator have included a continual round of conferences with civil service in which he and his division chiefs have been trying to keep industry-skilled civil servants.

"I think," says he, tipping back his green leather-covered chair, "that we haven't made out too badly. Of course, we've been unlucky in some cases, but by and large, we've come through with a good staff."

A prime concern to O'Keefe was the idea of division equality. In NPA's early days, steel and other controlled metal interests dominated agency decisions. He has worked for an equalization which he hopes will give every division a status equal to each other.

O'Keefe is slated to return to his job as manager of plastic and resin field sales for Naugatuck at the end of this month, and while the final steps in changing NPA into BSA will come after his departure, they will, in good part, be dependent on the foundation he has laid.

One major decision still to come will involve the place of industrial advisory groups. NPA had about 500 such groups at one time to advise it on specific fields. The chemical division had councils which covered such commodities as nitrogen, sulfur, and alkalis. At present, though, it has only two: a general industry committee and one which covers chlorine.

These general industry committees, under the original plans, were to serve as industry liaison with various branches of the government. They would, in effect, substitute for company Washington representatives.

Now, with the budget what it is, there may not be too much action. The committees would function primarily if some defense-related emergency would arise.

Recently, though, another industry proposal has been heard. Steel producers have advocated industry councils which would report directly to Secretary Weeks. They would be

*Once a professional football end and blocking back, still a high-70's golfer.

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BUSINESS & INDUSTRY

somewhat analogous to the relationship between the National Petroleum Council and the Interior Department.

There are considerable differences between advisory committees and advisory councils. The committee would have federal presiding officers who would keep charge of the agenda. The councils, paid for privately, would only have incidental government participation in meetings, though the decisions would still be reported to high federal officials.

Because of the anti-trust implications of such a set-up, the Department of Justice has expressed its concern. As yet, it hasn't given any opinion on whether these councils would violate federal statute.

Privately financed councils—while nebulous now—would at least have the advantage from the Commerce Department's standpoint of not requiring any of the \$4.2 million it has available for BSA.

With this money, the agency will be little more than a framework—but at least it is a skeleton which could be used to build closer peacetime contacts between government and business, or one for use in any future mobilization emergency.

LABOR

Seasonal Drop: As with mosquitoes and highway crowds, there's a fall-off in chemical employment that seems to come each year with warm weather. The decrease in number of chemical production workers from April to May amounted to 10,800 this year; 13,000 last year; and 7,000 in 1951. However, trend of the total employment level has been upward. After last year's May drop, total chemical employment stood at 741,000; this year, it was at 751,600.

Chemical wages, on the other hand, keep climbing higher without any seasonal interruptions. Average hourly wage rate for all chemical production and maintenance employees hopped up another 2¢ in April to \$1.80/hour, according to latest official figures from the Bureau of Labor Statistics. Top-paying branches of the industry are synthetic rubber, \$2.11, and soap and glycerin, \$2.09/hour. At the other end of the scale are fertilizers, \$1.37, and vegetable oils, \$1.32/hour.

Nearly Unanimous: Besides having become almost universal in the oil industry, the 4% wage increase pattern of the CIO Oil Workers is being generally accepted, it appears, in areas where the oil industry is dominant. At Port Neches, Tex., members of four AFL craft unions have ap-

proved a new contract, based on the 4% rise, with Jefferson Chemical; and Oil Workers local 228 has accepted similar wage hikes from B. F. Goodrich Chemical and U.S. Rubber. The Oil Workers say that their 4% figure, which is equal to about 9¢/hour on the average, now has been accepted by all major oil companies. Last big corporation to fall in line was the Sinclair group—Sinclair Refining, Sinclair Oil & Gas, Sinclair Pipe Line, and Sinclair Research Laboratories.

Companies Get Nod: Of its three big decisions touching the chemical industry recently, the National Labor Relations Board gave its nod to the company in two cases and to the union in one.

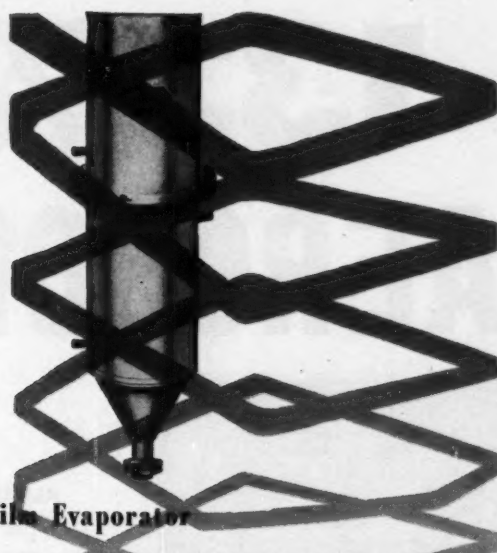
- Sometime during the next few weeks, the 1,700 employees at Du Pont's Neoprene plant near Louisville, Ky., will vote in their fourth plant election since last September. This is the upshot of NLRB's decision upholding the company's complaint about the No. 3 election last May, won by International Chemical Workers Union (AFL). Du Pont had asserted that funds from the treasury of a now defunct union were distributed in such a manner as to influence employees to vote for ICWU.

- In a decision angrily criticized by the United Gas, Coke & Chemical Workers (CIO), the board has withdrawn an order that had directed National Carbon Co. to bargain with Local 85 at Niagara Falls, N.Y., following a strike (CW, Sept. 20). This forces Local 85 to ask for an election in which it can try again to get recognition as bargaining agent for hourly paid employees there. Gas-Coke charges that NLRB handling of this case contained no "hint of impartiality."

- Although all labor unions lost out in the NLRB election for the main group of production and maintenance workers at the H-bomb plant being built and operated by Du Pont near Aiken, S.C., Gas-Coke's victory in an earlier election for some 225 firemen at that plant has received NLRB's stamp of approval. Du Pont had contested the election, claiming that Gas-Coke publicity leaflets "went beyond the free-speech provisions" of the Taft-Hartley law.

- **Pickets, No End:** Other strikes and threatened strikes popped up in the chemical news this week from coast to coast.

- One of the most unusual of these cases of labor-management friction is at Penns Grove, N.J., where em-



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ALMOST 100 MILLION! In 1952, according to a recent report issued by the **CSMA** (Chemical Specialties Manufacturers Association), leading packers of aerosol products loaded approximately 98,000,000 units. This compares with roughly 42,000,000 units packed during the year before and represents an over-all increase of about 56,000,000 . . . a gain of 133%.

Although aerosol space insecticides and room deodorants represented the largest volume of household-type products, with a combined total exceeding 44,400,000 units, many other aerosol product types showed remarkable gains . . . some as high as 1417%. Many of these new product types, such as water repellents, rug shampoos and other household items that were introduced only within the previous twelve months, totaled almost 3,100,000 . . . an increase of well over 2,880,000 units.

PERSONAL-TYPE AEROSOLS INCREASING IN POPULARITY! Shave creams also made rapid gains throughout the year and many old, familiar names appeared in aerosol dress. Aerosol hair lacquers spurted to about 7 million. Personal-type aerosol packages reached a total well above 25 million . . . a sevenfold increase over 1951.

Other new aerosol products of miscellaneous types, such as Christmas "snow," lubricants, antistatic sprays and many others, represented a combined total of more than 13 million units, compared to fewer than 3 million



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DU PONT

SAFE



B & I

ployees of Du Pont's Carney's Point plant took a strike vote during a dispute over a new contract. The strike was voted down by 311 to 78, but the fact that the vote was taken was news in itself. It was the first strike vote ever held among Du Pont employees in that area. The plant union at Carney's Point, called simply "the Collective Bargaining Agency," is asking a 10¢/hour increase, has rejected the company's 6¢ offer. Some employees have expressed dissatisfaction because their union is not recognized by the NLRB.

• A weak spot has appeared in the blanket of labor agreements that spread over the Florida phosphate fields last May (CW, June 6). About 250 chemical department employees of International Minerals & Chemical Corp.'s Bonnie plant near Bartow have gone on strike, with contract still unsigned. Other members of ICWU Local 35—most of whom work in the mining department—are reported to be staying on their jobs, but contributing 10% of take-home pay to the chemical employees' strike fund. The \$14-million triple superphosphate plant, opened last March, was "completely shut down" by the strike.

• North American Cyanamid is trying to generate a back-to-work movement at its Niagara Falls, Ont., plant, where some 750 members of the United Electrical Workers (Ind.) went on strike after long negotiations on a wage dispute. Explaining that it offered wage increases ranging from 3¢ to 17¢/hour but refused to check off union dues, the company now says "The plant is open and jobs are available for those wishing to work."

• Coming of a federal mediator brought no immediate end to the construction workers' strike in the Sabine Lake area of southwest Texas. The AFL tradesmen struck four weeks ago for a 40¢ increase, while the contractors have offered a 4% rise (about 10¢/hour) in line with the pay boost pattern set by the petroleum and chemical industries in the region. A spokesman for the carpenters, whose present pay rate is about \$2.35, declared that construction and petrochemical employment can't be compared, because construction workers are employed only about 75% of the time.

• **Nylon Plant Job Halted:** Unexplained discontent on the part of members of the AFL Hod Carriers Union interrupted construction of Du Pont's new \$9-million addition to its nylon plant near Chattanooga, Tenn. A union spokesman denied there was any juris-

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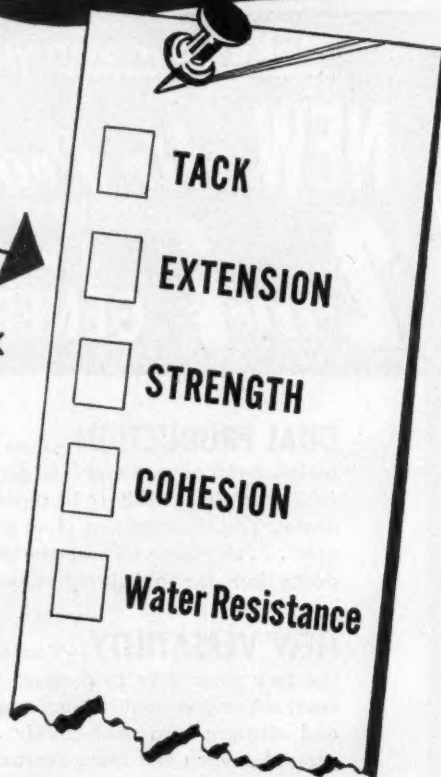
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B & I.

dictional dispute, but wouldn't say why his group posted pickets.

Jersey Balloting: Gas-Coke has one other election triumph to brag about this week. Among 310 employees in the main bargaining unit at the Heyden Chemical plant in Garfield, N.J., 211 voted for Gas-Coke and 49 voted against.

Temporary Truce: Pending action by a four-man panel recently appointed by President Eisenhower to help settle atomic plant labor disputes, 10,000 AFL construction workers are back at work on the new \$464-million atomic energy project at Oak Ridge, Tenn. Their two-day walkout was the first general strike at Oak Ridge since atomic work began there 10 years ago. The craftsmen want a 10½¢ wage increase, while the contracting employer, Carbide & Carbon Chemical's, has offered only the 5¢ increase recently accepted by the CIO Gas, Coke & Chemical Workers, who make up the permanent production and maintenance crew.

An Industry Divided

While chemical companies and other management groups are eager for the day when the United States government ends its monopoly over atomic energy (CW, June 6), spokesmen for chemical employees are fighting to have that day postponed indefinitely.

Industry's position, as epitomized in a recent statement before the Joint Congressional Committee on Atomic Energy, is that use of "the democratic principle of profit or loss" would result in "lower cost, higher quality" in atomic projects.

But the labor unions don't see things that way. The United Gas, Coke & Chemical Workers (CIO), fearing that private companies would use atomic power for their own profit and not for the public welfare, cautioned: "... let's not let the big utilities and chemical companies get control of this new discovery which is still too great for us to comprehend." And the International Chemical Workers Union (AFL) keeps hammering away at the GOP administration's "give-away" program.

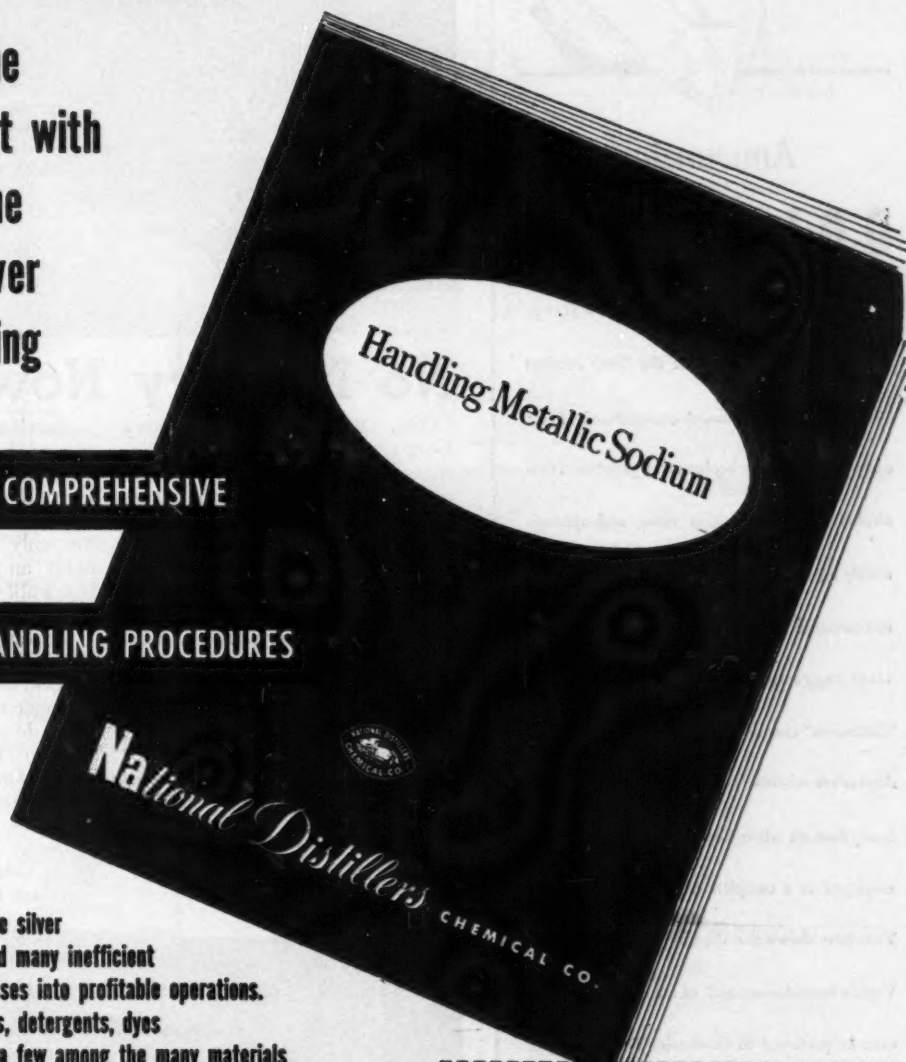
Insisting that atomic plants should be publicly operated as well as publicly owned, the CIO recently told the Joint Congressional Committee that the Atomic Energy Commission should never have allowed atomic manufacture to become "concentrated in the hands of only a few firms like General Electric, Du Pont, Union Carbide and Monsanto."

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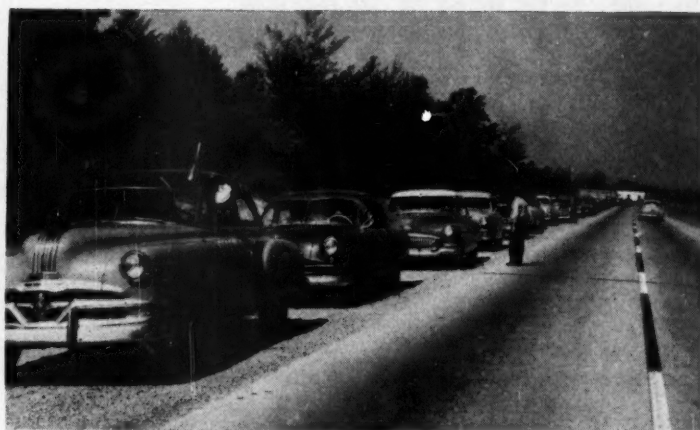
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BUSINESS & INDUSTRY



No Mystery Now

GOAL OF TWO recent mystery tours taken by Farm Women's Exchange members was Dow Chemical Co., which rolled out the carpet in style. Its double surprise package: a carefully hostessed plant tour, followed by a visit to Dow Gardens.

Arriving at Midland on schedule, the caravans of mystified visitors were met at the city limits by Midland police, directed to Dow parking lots. There local buses took over, shepherded the delegations (as many as 200 strong) to plant protection personnel for registration. Guides and a welcoming committee (made up of the Midland Newcomers Club) got in the act, added a fillip of local neighborliness.

Mostly women, with a sprinkling of men obviously interested in traveling, no one's supposed to know what's on tap beforehand. Processions are formed at county seats, the only information passed out plugs "an interesting, unusual trip." Not until the lead car pulls up is the secret out.

For the latest visitors, from Osceola County, luncheon was provided by local church groups, Chamber of Commerce officials were in attendance. Many an enlightened "Exchanger" now not only has a firsthand glimpse of what goes on in a chlorine-caustic plant, but remembers the warm hospitality shown by Dow and civic representatives alike. For all concerned, the tours are deemed time well spent.



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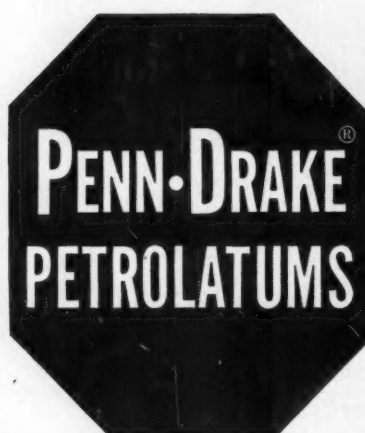
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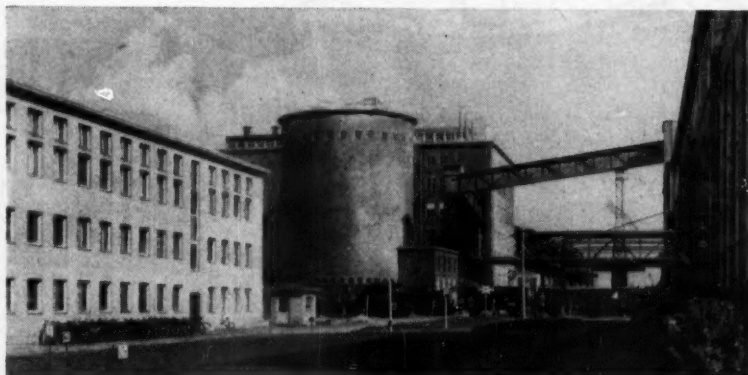


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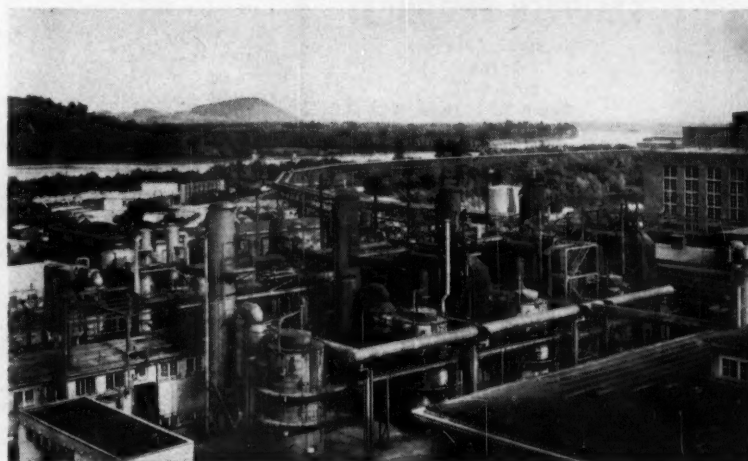
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Strained But Struggling

It's usually the small boat that takes the heaviest buffeting in heavy seas. So, when the chemical market gets tight, the small competitor feels the jar hardest; a shortage of certain basic raw materials can rock the very foundations of his new, loosely-rooted industry. In Austria, that's the picture today. Chemical production and sales are off; exports are sliding, the level of exports' value is dropping steadily.

Reason for the slack-off lies rooted in the close interconnection of the Austrian chemical industry with many sectors of the general processing industry which is at present wrestling with twin problems—shortage of local raw materials and slow foreign sales. There's no stockpile of materials to tide chemical companies over even the shortest dry spell; even the loss of a single major foreign customer cuts profits to the bone.

The peak year chemically-speaking for Austrian production and sales

was 1951. Since then the picture's become progressively grimmer—last year alone volume of exports dropped close to 20% as West Germany and Italy got going and offered spirited competition.

But officials of the Austrian Association of the Chemical Industry refuse to give up, point to production of certain new items last year as indicative of another surge upward. Among those cited: acid for storage batteries, sulfonates, formaldehyde, copper carbonate, copper oxides, oleum, silica gel.

Other sectors of the industry brought on-stream new plants, found the going rougher than anticipated. They include:

- A second division of the Bleiberger Bergwerks Union's sulfuric acid units at Klagenfurt, Carinthia, which got underway early in 1952. Backbone of Austria's bright-new chemical industry, company officials ruefully report fully two-thirds of

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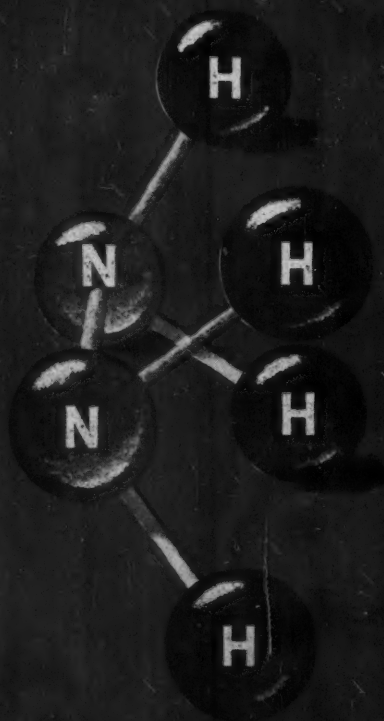


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their maiden year was overshadowed by slow sales. Only now normal operation loads are being reached.

- Production of calcium carbide expanded so quickly last year, storage facilities couldn't stand the load. A serious sales stagnation forced companies to cut foreign prices. Result: while annual production in Austria soared to 14,100 metric tons, the industry didn't really profit from its expansion.

- Raw material shortage hampered copper sulfate producers nearly all year. Imports are costly; what's available to producers appears at infrequent intervals. Nickel sulfate, however, offered less trouble. Domestic production, say Austria government officials, now can fill all internal demands and contracts for export have been vastly profitable.

- Reflecting the world-wide textile slump last year, production and sales of Austrian hydrogen peroxide ran into difficulties. Domestic consumers tried to take up the slack, but as supplies mounted prices were forced down.

- A severe turn for the worse was experienced in the production of ether. Prices were boosted (necessarily) four times during July alone, caused most large-volume buyers to cancel contracts and import. But Austria can't ever compete on international markets with other countries. Reason: West German alcohol prices are considerably lower, give German producers an edge on the field.

- A real bottleneck has developed in the supply of Austrian-produced phenol, causing repercussions in the production of salicylic acid. The problem amounted to an impasse: to produce salicylic, suppliers had to be able to buy phenol at a lower rate—but as fast as they'd buy up a lot, the price of salicylic would slide down a notch. What happened: everybody in the act played a waiting game and before prices stabilized production had sunk to only 50% of the 1951 level.

- One bright spot appeared in the fertilizer industry. Production of ammonia-sulfate reached an all-time high (32,000 metric tons); output of nitrogen-based fertilizers took a similar jump—up 6% over 1951. Exports picked up some; only second half price slashes (forced down by international trade) took off the edge.

- In the cosmetic industry, legislative action is now pending to curb French "dumping" activities. All Austrian-produced goods will be labeled as such and will clearly explain the difference in price level;

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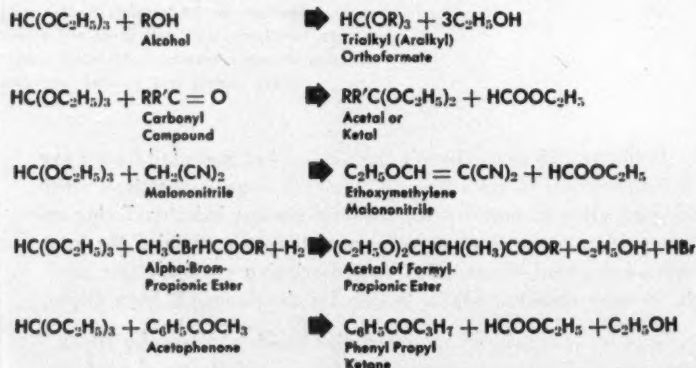
triethyl orthoformate



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purity	● 99.0% minimum
specific gravity	● .892 — .896 at 20°/20° C.
color	● Maximum 15 Hazen Scale

Typical reactions of TRIETHYL ORTHOFORMATE



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little or no exporting will be allowed.

• Similarly, exports of pharmaceuticals are now controlled in Austria by the Socialist-ruled Ministry of Social Administration. Of all Austria-consumed pharmaceuticals some 80% stem from domestic sources, the balance (amounting to some \$800,000) comes from the United States, Scandinavian countries. Production of penicillin and chlorophyll has made notable progress recently.

Production of oxygen and welding gas increased only slightly last year—far below expectations. The Vienna Dissous Gas Works, destroyed in an explosion in 1951, only now has been rebuilt.

• The synthetic rubber industry is currently champing for protective legislation. Production of foam lastex began in 1952 and supplies of raw materials are for-the-present adequate. But there's no prohibitive customs tax or foreign exporters, so that the ever-eager European rubber industries have been putting pressure behind an all-out sales blitz to cut the ground out from under the Austrian producers—particularly the Germans.

• Lack of coordination between various sectors of the Austrian plastics industry has caused a major headache. Both production and sales dipped seriously in the early months of last year; too many producers were all trying to jump in at once; raw materials were scarce; know-how was lacking. Result: in recent months a plastics committee has been sponsored by the Austrian Chemical Assoc.—is made up of members of both plastics-producing and plastics-processing industries. It's hoped that some of the less cumbersome problems can be ironed away soon.

Reports for the first quarter of 1953 brook hope for the struggling industry—both sales and profits are up slightly. More significant: the Austrian chemical industry is now facing its difficulties head-on. With the realization that only with strict controls on raw materials and prices at home, can a small country hope to compete in world chemical markets, it's taking steps to plug the holes, caulk the seams.

LEGAL

Not Forgotten: That the U.S. anti-trust laws haven't been pigeonholed and forgotten by the Eisenhower administration was plain last week when the Dept. of Justice reopened its 1937 suit against Aluminum Co. of America with a request that the court cancel a big aluminum purchase contract. Charging that the contract "pre-



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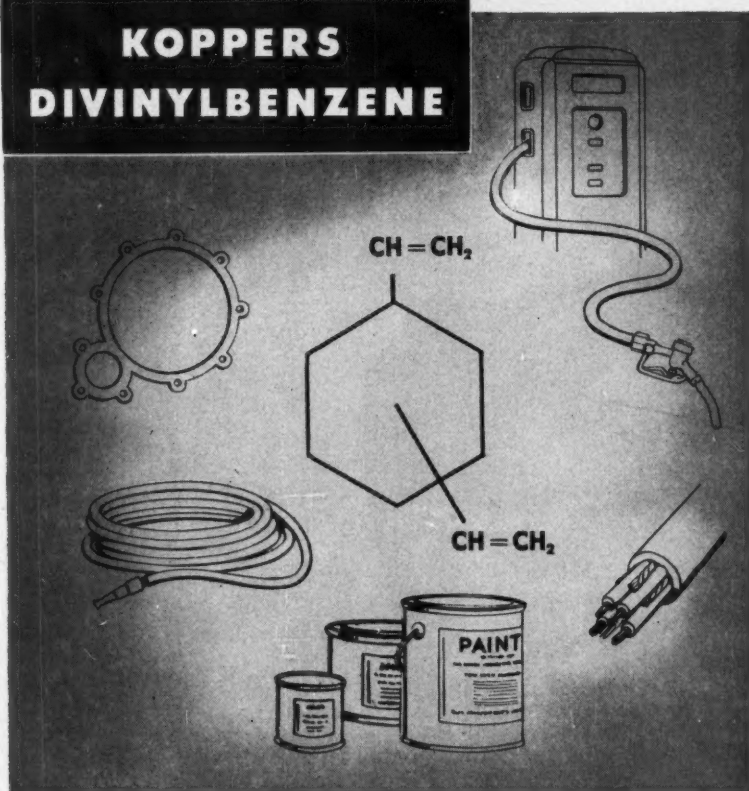
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DIVINYLBENZENE is a clear, mobile liquid, possessed of a sharp odor. This highly reactive bi-functional monomer is of interest as a chemical intermediate and as a cross-linking agent for various polymers. It is useful for the production of copolymers such as synthetic ion-exchange resins, potting and laminating resins, modified drying oils and alkyd resins, and synthetic rubber.

Divinylbenzene is supplied in two grades. Divinylbenzene 50-60% is composed of the isomers of divinylbenzene and ethylvinylbenzene and some diethylbenzene. It is particularly useful for applications which require a high proportion of reactive components. Divinylbenzene 20-25% is composed of the isomers of divinylbenzene and ethylvinylbenzene together with some styrene monomer, diethylbenzenes, toluene, benzene, and ethylbenzene. It is particularly useful in the production of Super Processing GR-S chemical rubbers, styrenated drying oils, and other products in which limited amounts of non-polymerizable compounds are not objectionable.

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Chemical Division, Dept. CW-8153, Pittsburgh 19, Pennsylvania



Koppers Chemicals

B & I

cludes the complete disassociation" of Alcoa and Canada's big Aluminium Ltd., the government asked the court to void Aluminium's agreement to sell 1.2 billion lbs. of aluminum to Alcoa over a six-year period, 1953-'58. Also requested: steps to completely sever the two corporations, which under a 1951 decision have been objects of a separation that is "only fictional." Aluminium denies that the purchase contract violates the Sherman Act.

Tax Refund: Buyers of chemicals and machinery for processing water in South Carolina are lining up for refunds on state sales tax they've paid on such articles. The state tax commission now holds that chemicals that become a component of the water are exempt from the tax.

Crop Spray Squabbles: Increasing importance of aerial application of insecticides and herbicides is seen in two court fights over spraying operations this week. One court has issued an injunction grounding a sprayer, while another court has ordered that a sprayer be allowed to keep on flying.

• At Lexington, Ky., Fayette County Circuit Court has granted a restraining order stopping Chester Reed from carrying on his crop-dusting services, has under consideration a request from the State Department of Aeronautics asking for a permanent injunction.

• When his crop-spraying firm failed to receive a permit from the State Plant Board, J. O. Dockery of Little Rock, Ark., went to Chancery Court and won an injunction that allows him to operate without a permit until the Plant Board can meet to study its regulations on issuance of permits. Dockery specialized in 2,4-D application.

Cotton Damaged: Weed-killing 2,4-D also figures in another legal situation this week. The U.S. Army's Corps of Engineers used a quantity of that chemical to eradicate weeds along a flood-control spillway, and apparently much of the 2,4-D somehow was carried into cotton fields over three parishes (counties). Louisiana representatives have asked the U.S. Congress to authorize the Corps of Engineers to reimburse those farmers directly, but instead, Senate and House committees are recommending that the Corps make a survey of damages and submit a detailed report when Congress reconvenes next winter. State agriculture officials say cotton growth was retarded by about one month, but

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Because it can be so durably bonded to steel, glass, with its *almost universal corrosion resistance*, is not limited to use in the laboratory alone. Today, glassed steel reactors in capacities up to 3500 gallons are commonplace in the chemical process industries. These units are equipped with agitation, can be jacketed for heating and cooling, and are supplemented by a complete line of glassed steel accessories—valves, pipe and fittings, condensers and the like. Custom units as large as 8300 gallons have been constructed.

Even at elevated temperatures and pressures, Pfautler glassed steel is *resistant to all acids except hydrofluoric*. And now, with a new Pfautler glass, it is possible to handle *alkaline solutions* up to pH 12 and up to 212° F.—with no reduction in acid resistance. Thus it is possible to perform a wide variety of chemical reactions in a single glassed steel vessel.

Whenever you have an equipment problem requiring *corrosion resistance, durability, and versatility*, as well as the economy which these features make possible, look to Pfautler glassed steel for the solution.

Write for Bulletin 894-B-4

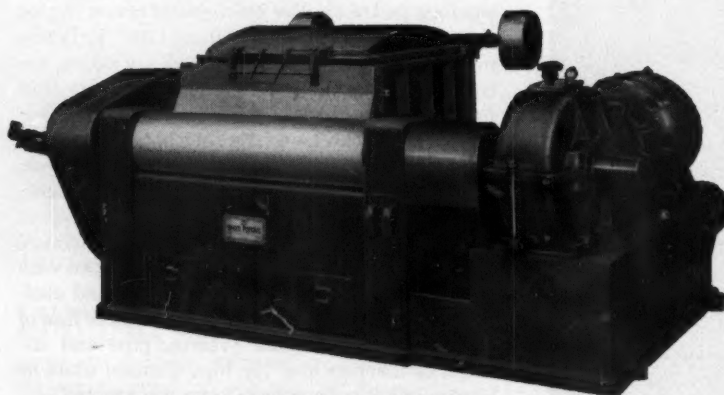
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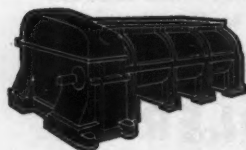
There is a BAKER PERKINS Mixer built to efficiently mix and knead materials ranging in consistency from dry powders and light fluids to stiff plastic masses. Close clearance between the blades and trough keeps every particle of the material in constant motion so that no part of the batch escapes the thorough mixing action of the blades. Intensive kneading is maintained as the material is pulled and squeezed against the blades, saddle and sidewalls. Consult a B-P sales engineer for full facts.



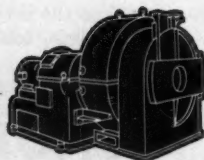
Size 16, NEM B-P "Universal" Mixing and Kneading Machine for heavy plastic masses. Working capacity 150 gallons; total capacity 225 gallons. Fabricated steel trough shell jacketed for 150 psi. steam or water pressure. Cast iron trough ends are not jacketed. Saddle section has thermocouple for temperature control. Cast steel Sigma or Double Naben blades cored for circulating steam or water. Oil tight gear guards; anti-friction bearings. 50 HP motor.

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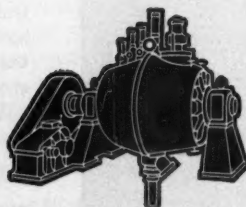
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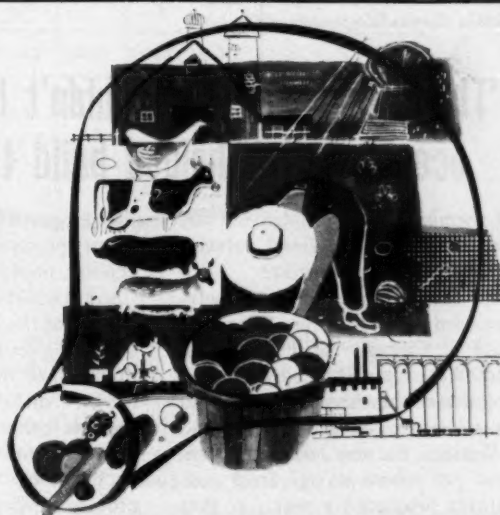
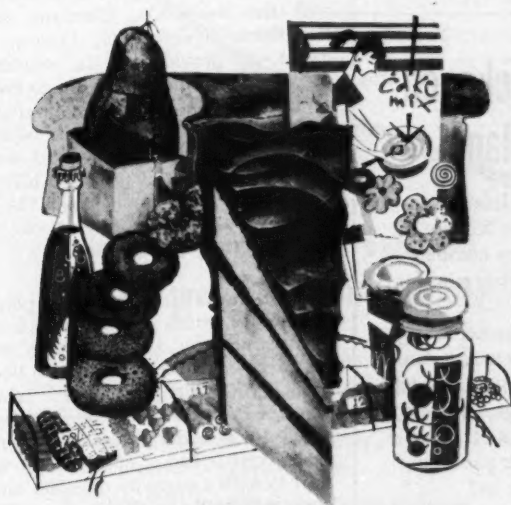
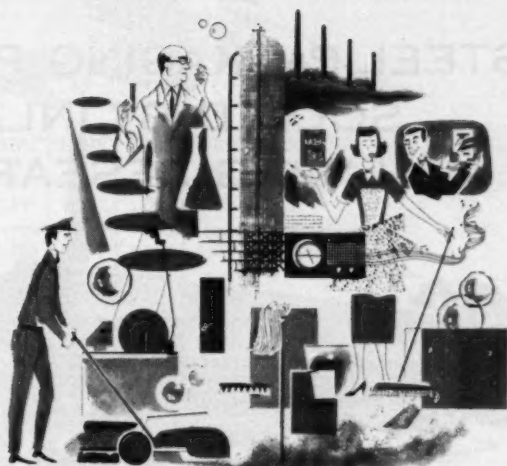
that the plants have been making "very nice recovery."

Liability Study: Another case in which the United States government is being asked to assume responsibility for damages to private persons is that of the 1947 ammonium nitrate explosions at Texas City, Texas. Following the U.S. Supreme Court's ruling that the federal government could not be sued for the \$200 million asked by the claimants (*CW, June 20*), the House of Representatives has authorized its judiciary committee to investigate the disaster and see whether the U.S. government has a moral, if not a legal, liability. A subcommittee is expected to visit the scene of the blast this fall.

Fumes Provoke Lawsuits: Diamond Alkali's Organic Chemicals Division—formerly Kolker Chemical—is defendant in two lawsuits in state district court at Houston, Texas, with both plaintiffs asking substantial sums for injuries allegedly caused by fumes from the company's plant near Green's Bayou. The petitions assert that Mrs. Mary Louise Evans and two-year-old Dennis Ray Sullivan sustained permanent damage to their lungs and throats when they inhaled "noxious and poisonous gases" said to have been released when a railroad tank car collided with some other object. Together, the plaintiffs are seeking \$91,500 in damages.

Trade Law Tightening: Canada's anti-dumping laws are likely to be further tightened to help protect that country's hard-pressed textile industry from foreign competition. Speaking in the textile center of Cornwall, Ont., two ministers of the federal government spoke of legislative aid for makers of staple fiber and rayon textiles in the face of heavy imports of these products from the United States.

Dispute on Drugs: The Proprietary Association, whose membership consists of companies manufacturing patent and proprietary medicines, has won the declaratory judgment it sought in New Jersey's Supreme Court, but now it's dissatisfied with the State Board of Pharmacy's interpretation of the ruling. The court agreed with the association that the board's former definition of the term "medicine" was unreasonably narrow, and that non-poisonous drugs may be sold in retail outlets other than drug stores. The Board of Pharmacy says it regards the decision as meaning that sale of aspirins, cold and headache remedies,



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Remember the old problem—if you could find the universal solvent, what would you put it in?

A few years back the newly-founded Scholle Chemical Corporation of Chicago faced a problem almost as tough. Their nitrocellulose solution concentrates were in demand as a base for lacquers, inks and adhesives. *But they couldn't be packaged for volume selling!* Steel containers produced a reaction that discolored them, made them unfit for use. And other types of containers were too expensive. Scholle brought their problem to Inland.

Working together, Inland's lining research department and Scholle engineers tested many types of container linings for a full year. The one that passed all tests was Inland's own special protective lining IC-25.

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"IC-25 provides completely satisfactory protection," says William R. Scholle, president of the company. "And it holds up, trip after trip, for the life of the drum."

Finding the right container lining might open new markets for you, too . . . or help you serve present markets better. We'll gladly show you how our research and experience can help solve your packaging problems. Why not ask us?



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bromides and other products still must be restricted to drug stores.

River Rationing: Waters of the Sabine River, the stream that marks the boundary between Texas and Louisiana, will be divided among various cities, chemical and petrochemical plants, and other consumers under terms of the interstate compact now pending before the U.S. Senate. The compact already has been ratified by the Texas legislature, and—according to Louisiana politicians—"undoubtedly" will be ratified by the Louisiana Legislature next spring.

FOREIGN

Silicones/Japan: Shinetsu Chemical Co. is expected to sign contracts soon with the Bayer Co., Germany, and the Rhone Poulenc Co., France. Its intent: to provide for an exchange of patents, enabling Shinetsu to build a plant capable of turning out silicon and 8 tons silicones/month. Silicon is now produced by two local companies in Japan; this proposed hike in production levels would make the islands virtually independent of imported silicon.

Plastics/Australia: Polystyrene plastic molding materials will be turned out in Australia for the first time next October, will subsequently get a boost from CSR Chemicals Ltd., which plans to get into production in about a year. The leader, Monsanto Chemicals (Aust.) Ltd., Melbourne, will start in with a capacity of 3,000 tons/year, will in the early stages use imported monomer. Plans for production of monomer material in Australia are under consideration, however.

β -Carotene/Italy: The first β -Carotene plant (vitamin A source) in Europe is now being built by Mulini Conservan Mario, Padua, near Rome. Output will be based on extraction from 25-30 million lbs. of carrots/year; exclusive European rights for processing formulas have been obtained by contract with the Barnett Laboratories, Long Beach, Calif. Byproducts: animal food, fertilizers.

Water Softeners/Italy: With capital guarantees established by the Mutual Security Administration, National Aluminate (Chicago) is building a plant at Cisterna, Italy, to produce chemicals for water softeners. Its potential consumers: Turkish and Italian railways, other firms throughout the Near and Far East. Actual size of output has not been declared, but a greater

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REFRACTIVE INDEX, 25°C.		1.493	1.484	1.480	1.477	1.4778
HARDNESS, ROCKWELL R (ASTM D 785-44T)		124	116	152	112	88
HEAT DISTORTION TEMPERATURE, 264 LB./SQ. IN. (ASTM D 648-45T)	°C.	72	55	<25	54	30
TENSILE STRENGTH (ASTM D 638-44T)	lb./sq. in.	7800	5400	500	3600	2100
ELONGATION AT BREAK (ASTM D 638-44T)	%	1	25	300	1	175
IMPACT STRENGTH, CHARPY UNNOTCHED	Ft. lb./in.	4.1	4.1	3.4	0.8	1.4
DIELECTRIC STRENGTH (0.05 IN. FILM)	v/mil	740		625		
POWER FACTOR, 25° C., 60 CYCLES		0.065	0.045	0.068	0.012	
DIELECTRIC CONSTANT			2.9	2.9	2.5	

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These Du Pont "Lucite" acrylic resins are designed for use in solution applications and as modifiers for other resinous compositions. Soluble in a wide variety of polar and non-polar solvents and compatible with many plasticizers, this series of resins includes:

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These resins have excellent outdoor durability, are chemically stable at elevated temperatures, and are resist-

ant to water, aqueous salt solutions, and moderately concentrated acids and alkalis. Versatile in nature, they are used in lacquers and other finishes, in coatings for vinyl sheeting, and in adhesive compositions; in wax blends for use as a casting material, in aerosol preparations, and as modifiers for other resins.

Why not investigate the use of Du Pont acrylic resins in your business? We'll be glad to send you more information on these versatile materials—specifications, properties, suggested uses, etc. Just send in the coupon below, or write to: E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department, Wilmington 98, Delaware.

AVAILABILITY: Du Pont "Lucite" acrylic resins—available as clear granular solids—are shipped in fiber drums.

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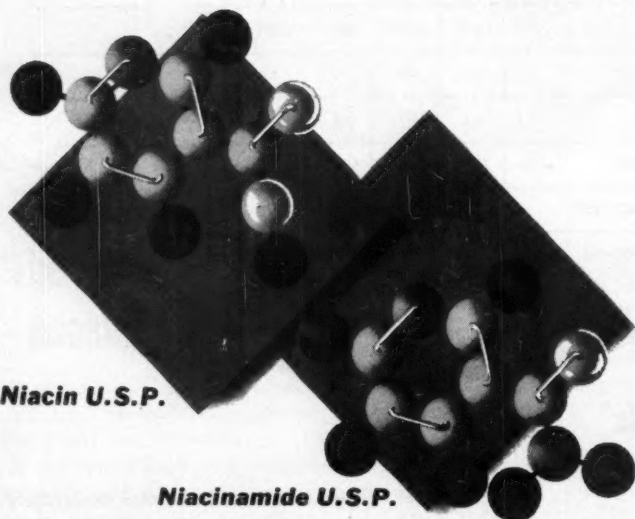
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part of the raw materials will come from Italian chemical firms.

Plastics/Israel: The Serefen Resinous Chemicals Corp. has started producing polystyrene molding powder near Rehovot, Israel. Initial production: 600 tons/year, more than double present internal requirements. Future plans include production of polyvinyl acetate products, acrylic resins, soil conditioners.

Chloromycetin / Philippines: Parke, Davis & Co. is going to build a plant near Manila to produce chloromycetin and an antimalarial, camoquin hydrochloride. Both drugs will be completely synthesized in the Philippines from basic materials. Cost: \$5,000,000; production rate: 200 kgs. chloromycetin/month by early next year.

Production Goals/Russia: Russia's chemical industry, according to its official government newspaper, Izvestia, has exceeded its production goals by some 2% so far in 1953. Particular highlights of the industry: production of synthetic phenol, mineral fertilizers, insecticides, dyes and synthetic rubber. One sour note: the Ministry of Machine building has fallen short of meeting its quota for delivering equipment to the chemical industry.

KEY CHANGES . . .

J. B. Johnson, to vice president, Hercules Powder, Wilmington.

John C. Haas, to vice president, Rohm & Haas, Philadelphia.

Manly B. Brown, to marketing vice president, Great Lakes Carbon, Chicago.

Marshall S. Lachner, to manager, soap and industrial sales departments, Colgate-Palmolive-Peet, Jersey City, succeeding the late James A. Reilly.

Wilbur H. Miller, to director, custom sales, Cyanamid's Lederle Laboratories Div.

Thomas B. Potter, to assistant to vice president, production, Commercial Solvents Corp.

V. G. Vashinder, to branch plant manager, Davison Chemical, Lansing, Mich.

Ralph M. Hunter, to electrochemical research and development coordinator, Dow Chemical, Midland, Mich.

David M. McQueen, to director of research, Du Pont's experimental station, Wilmington.

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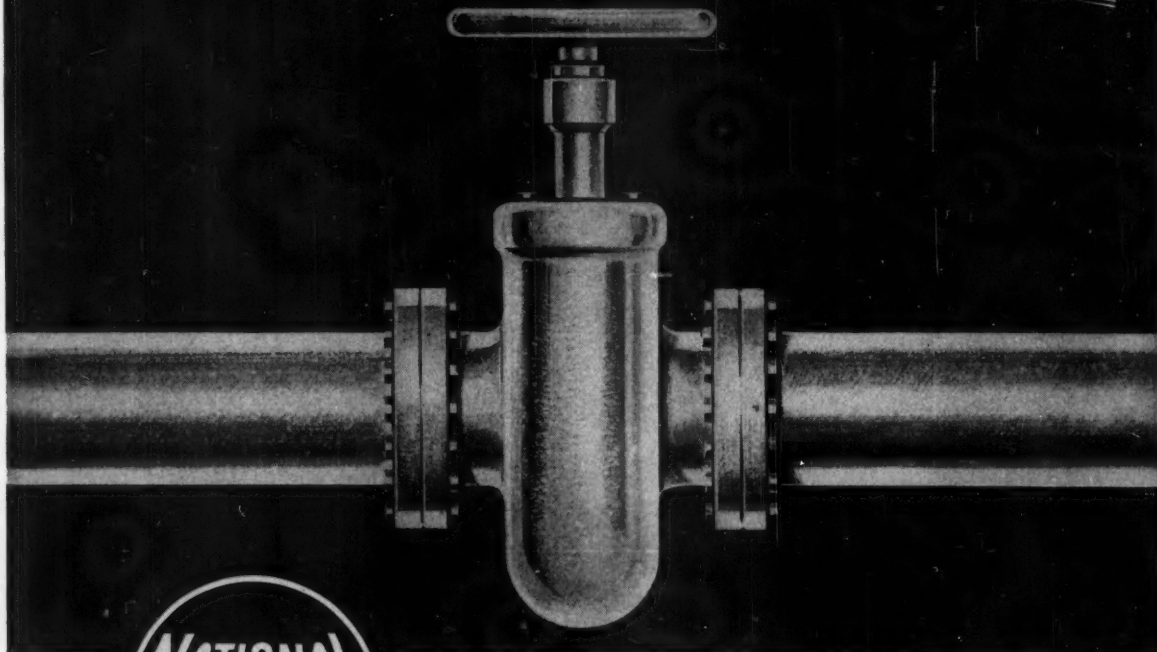
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nor operational costs related to the production of acetylene.

Still other considerations point to Calvert City as the ideal location for those who use acetylene as their building block in chemical syntheses, since other sources of base chemicals, such as chlorine and hydrochloric acid, are at hand. For detailed information about quality and cost data, you are invited to write to:



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RESEARCH

Two Give a Clue

The treasure-trove of organic phosphate toxicants, uncovered less than a score of years ago, is still yielding up intriguing pesticidal baubles. Newest are a pair of promising systemic insecticides discovered at Shell Agricultural Laboratories, Modesto, Calif. They are diethyl 2-chlorovinyl phosphate and dimethyl 1-carbomethoxy-1-propen-2-yl phosphate, were discovered during the screening of a group of new synthetic organophosphorus compounds.

It's not difficult to understand Shell's proprietary interest in the new materials. In their first published report on the compounds, Shell researchers Corey, Dorman, Hall, Glover and Whetstone claim "extremely high systemic activity, moderate to high contact activity" for their discoveries.

What this means in terms of significant comparisons may be seen from toxicological data. By a root absorption technique using a pinto bean plant infested with two-spotted mites (*Tetranychus bimaculatus*), Corey and co-researchers found a systemic LD₅₀ of 0.75 parts toxicants per million parts water. Chemagro Corp.'s Systox* and Monsanto Chemical Co.'s OMPA†, both in wide commercial use, gave systemic LD₅₀'s of 1.5 and 25.0 ppm, respectively.

Results of laboratory contact spray tests showed that neither new compound outdid Systox, though dimethyl 1-carbomethoxy-1-propen-2-yl phosphate ranked in the same order of magnitude where effectiveness against

* diethyl 2-mercaptoethyl thionophosphate.
† octamethylpyrophosphoramide.



SHELL'S COREY: Significant comparisons for volatile systemics.



Wider Use for High-Speed Eye

MANY THINGS ARE FASTER than the eye. But few are too swift for high-speed photography. Now Sam Tour & Co., Inc. (New York, N.Y.) has redesigned once-bulky speed photographic and lighting equipment, is able to take its 3,000-frame-per-second camera to industrial subjects. Here Tour technical director Leslie Fletcher (center) observes focusing of the rapid camera prior to photographing the fracture of a test specimen in a

Charpy impact testing machine. Film will show the break in progress, yield valuable engineering data.

Also offered for field use: time-lapse photography in which the action of several hours, days, or weeks is condensed into a smooth film sequence of a few minutes. Likely industrial subjects include studies of emulsification processes, corrosion effects, crystal growth, and sedimentation rates.

the pea aphid and two-spotted mite is concerned. Additional data indicate that the newcomers might make good space fumigants, better grain fumigants than chloropicrin and methyl bromide. Mammalian toxicities, states the Shell team, are approximately equal to those of Systox and OMPA.

If the new pesticidal pair does go commercial, competitors will have more than toxicity to reckon with. The chlorinated member, in particular, is a lot more volatile than other phosphorus systemics, disappears faster from treated plants. Result: residual toxicity—bane of organophosphorus pesticides—would be reduced. New fields of application, now out of bounds for phosphorus systemics, could be in the offing.

Commercialization, however, is by no means a certainty. Evaluation studies are now in progress at Shell's Denver laboratories and at several other installations. The company won't name the latter, but does reveal that no field tests are in progress. Even if the newcomers are not snagged in the laboratory, they may be a long time growing to commercial stature.

As they relate to Shell's pesticide program, the new duo is analogous to the visible portion of an iceberg. Unveiled only as a result of patent clearance, the two systemics are a good clue to what doesn't show. It's not at all impossible that other promising chemicals turned up in the company's long-range screening program will supersede the pair in the run for commercialization.



through Harte engineering know-how

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RESEARCH

Polio Probe: The value of gamma globulin in reducing the severity of polio paralysis is the subject of a just-launched cooperative research effort. Sponsored by Public Health Service (U.S. Dept. of Health, Education, and Welfare), the polio probe has enlisted the resources of the Association of State and Territorial Health Officers, the American Physical Therapy Association and the D. T. Watson School of Physiatrics (University of Pittsburgh). Nationwide in scope, the program—aimed at making the most effective use of gamma globulin—should start paying dividends during the 1954 polio season.

Hair Collector: A New Jersey entrepreneur is building a business on hair and feathers. Chemist William Weissman collects hair and feathers for use in the manufacture of cystine. At his East Rutherford, N.J., pilot plant, Weissman degrades the keratinous materials, extracts the desired amino acid. Selling price: \$7.50 a hundred grams. Relatively low cost is due, in part, to the raw-material picture; the hair and feathers are free for the taking from barber shops, beauty salons and chicken markets.

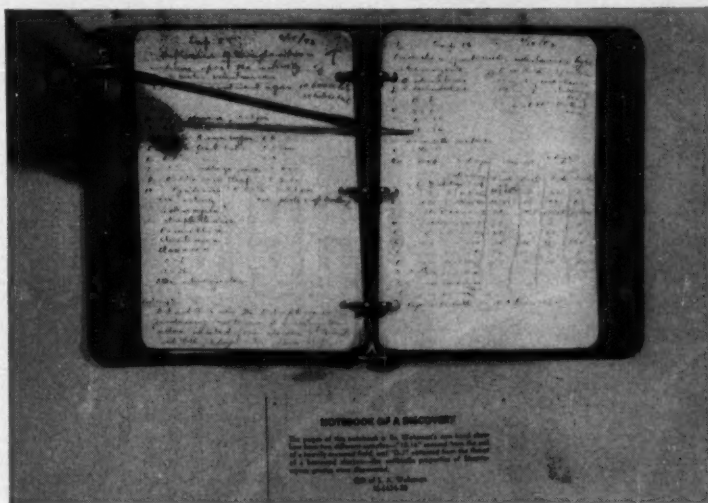
No Pain: A new series of highly active local anesthetics are the reward for researchers of Sterling-Winthrop Research Institute, Rensselaer, N.Y. They're 2-alkoxy-4-aminothiobenzates formed by the reaction of 2-alkoxy-4-nitrobenzoic acids and 2-diethylaminoethanethiol. All three reported compounds—the n-propoxy, n-butoxy and n-hexoxy derivatives—showed very high anesthetic activities, comparatively low irritancy. Products of Sterling-Winthrop's long-range anesthetic screening program, the new substances are the homologs of 2-alkoxy procaines.

Reactor Hold-up: North Carolina State College's nuclear research and training program suffered a temporary set-back when operation of the school's new nuclear reactor was put off until the end of this month. One of the few in existence at an educational institution, the N.C. State reactor will be used in the training of nuclear engineers, for the exploration of peacetime atomic energy applications. Delay of initial operation was due to contractual difficulties (with Atomic Energy Commission) in the procurement of fissionable fuel.

Bug Probe: Reliance Chemicals Corp. (Houston, Tex), manufacturers of microorganism preparations for use

THE WONDER DRUGS

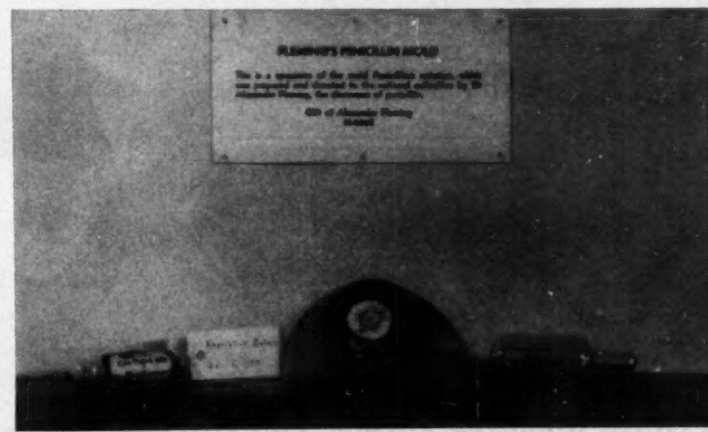
ANTIBIOTIC	DATE	DISCOVERER	MOLD
PENICILLIN	1929	FLEMING	R. NOTATUM
STREPTOMYCIN	1944	WAKSMAN	S. GRISEUS
CHLOROMYCETIN	1947	BURKHOLDER	S. VENEZUELAE
AUREOMYCIN	1948	DUGGAR	S. AUREOFACIENS
TERRAMYCIN	1950	FINLAY ET AL	S. RIMOSUS



Wonder Drugs Arrive

IF INSTALLATION at the Smithsonian Institution is any criterion, the antibiotics have truly arrived. Now in its opening days, a new Smithsonian Institution exhibit is given over completely to the wonder drugs. Commemorating the 25th anniversary of the discovery of penicillin, the set-up traces the antibiotics' history, contains memorabilia of early landmarks. Included is the original mold (in

black disc, below) from which Sir Alexander Fleming obtained penicillin, the first sample of penicillin (at left of disc) submitted to Food and Drug Administration, and the notebook (above) in which Selman Waksman jotted results of initial experiments with the streptomycin-yielding mold. Smithsonian officials estimate that more than a million and a half Americans will flock to the presentation within a year.





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48

RESEARCH

in sewage and waste treatment, is directing research efforts toward an expansion of the role of microorganisms in industrial waste treatment. Now in the works: cultures for decomposing phenols and aldehydes, treating citrus wastes and breaking down oil in refinery waste waters.

Silica Find: A new form of silica is reported by researcher L. Coes, Jr. of Norton Co. (Worcester, Mass.). Highly dense, the new silica is very inert, shows less chemical reactivity than normal quartz. It's not attacked by long heating in hydrofluoric acid, is rapidly dissolved, however, by fused ammonium bifluoride. According to Coes' claim in *Science*, "the new silica has not previously been described as the product of synthesis nor has it been discovered in nature as a rock constituent."

"The possibility exists," Coes explains, "that the existence of this form of silica in nature may have been overlooked. In some cases it may have passed for a mica which it resembles in form, refractive index, and double refraction. It is easily distinguished from the micas, however, by its hardness and insolubility in hydrofluoric acid."

Coes discovered the new silica during attempts to synthesize several naturally occurring minerals.

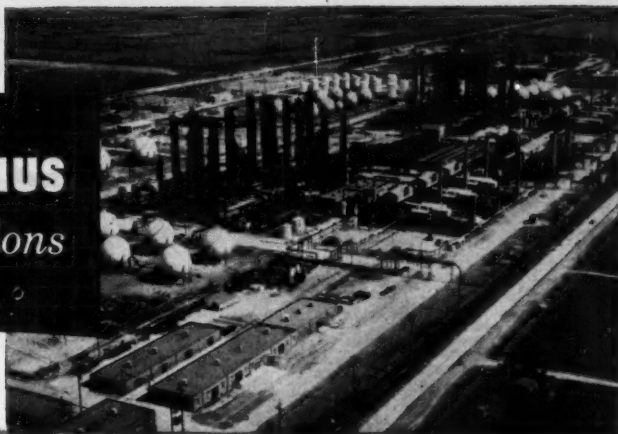
Utility Boost: A just-completed two-year research project could mean money in the bank for the coal, steel and electric utility industries, reports Bituminous Coal Research, Inc. The project, a technical-economic study, was aimed at discovering whether electric furnaces could compete with the open hearth in steel manufacture. Results—according to Bituminous Coal Research, which conducted the project with 14 electric utility companies—showed that complete replacement of open hearth by electric furnaces could drop the cost of making low-carbon steel (up to \$3.15 a ton), boost national output of coal (by about 25 million tons a year) and electricity (by 12%).

Shift: Application laboratory of Celanese Corp. of America is in transit from Newark to Summit, N.J. Purpose of the move: to gain space for expanding application studies with pentaerythritol, paraformaldehyde, vinyl acetate, vinyl plasticizers, lacquer solvents and tricresyl phosphate gasoline additive.

Ag Aid: Grants-in-aid totaling \$30,000 are earmarked for fertilizer research

Chemical Week • August 15, 1953

Chemical Plants by **LUMMUS** ...Assure Reliable Operations



PUTTING EXPERIENCE TO WORK TODAY.

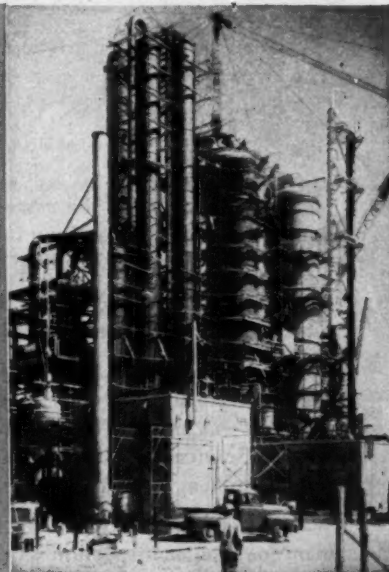
Today, Lummus is handling many different petrochemical and chemical projects—putting years of background experience to use in the light of today's competitive situations and technological advances. For example, the modern ethylene plant shown here is one of twelve Lummus projects in this field alone, including the world's largest unit. As a measure of engineering versatility, other recent Lummus projects are facilities for making phthalic anhydride, ethyl chloride, dichloroethane, formaldehyde, ethyl benzene, styrene monomer, isopropanol, phenol, acetone, carbon black, ammonia, aliphatic and cyclic alcohols.



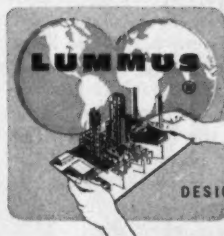
EXPERIENCE... Lummus' skill was achieved in designing and erecting upwards of 350 chemical plants all over the world. It took an experienced hand to create this butadiene plant, the world's largest—a big, tough job done under the critical press of wartime. Other similar early accomplishments are plants to make styrene, toluene, phenol, alcohol, ammonium picrate and catalysts.

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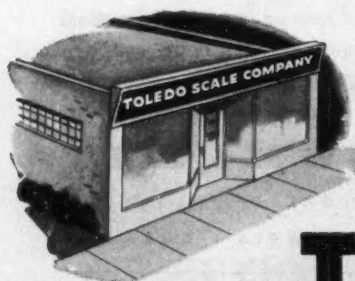


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HEADQUARTERS FOR SCALES

RESEARCH

at a number of Southern, Mid-Atlantic and Midwestern agricultural colleges. Donor: Nitrogen Division, Allied Chemical & Dye Corp. Projects included in the upcoming grants, says Nitrogen Division, "will relate to the use of liquid and solid forms of nitrogen fertilizers on corn, small grain, . . . and other crops." Also slated for study: use of synthetic urea as a partial replacement for natural proteins in cattle feeding.

Isotope Pointers: The first of a series of two-week training programs in industrial radiography with cobalt-60 is slated for the fall season by Technical Operations, Inc. (Arlington, Mass.). Previous training in radiography, mechanical engineering, foundry practice, or related fields is desirable for applicants. Aside from its instructive function, the program provides the basis for AEC approval of cobalt-60 purchases.

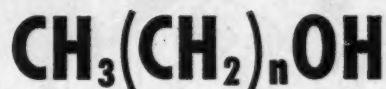
Budget Beamed: Bausch & Lomb Optical Co. (Rochester, N.Y.) is offering a new 1.5 meter, stigmatic-grating spectrograph designed, according to the firm, "to bring precision spectrography within the reach of small firms . . ." It's compact (measures 12 by 18 by 60 inches), is available in two models that provide different dispersions, resolving powers and plate coverages "Both," states Bausch & Lomb, "are capable of analyzing a wide range of non-ferrous materials . . . are [also] suitable for use on the more complex spectra of unalloyed gray irons, plain carbon steels, and low grade ores." One price: \$1,495.

Help Wanted: Eleven of the South's major pulp and paper mills are backing North Carolina State College School of Forestry's new training and research program in pulp and paper technology. Principal purpose of the training program: to supply badly needed personnel to the South's pulp and paper mills. A \$200,000 laboratory, now on the drawing board, will implement research plans.

Prospecting Twist: You don't have to be a botanist to prospect for uranium; but it helps. According to a recent report by U. S. Geological Survey, several Western plants are helpful in divining uranium deposits. Unlike most of their botanical kin, the key plants tolerate selenium, serve as guides to the location of selenium-containing uranium deposits. Now shaping up: a new science of geobotanical prospecting based on the recognition of plant clues.

In drums or tankcars...long-chain

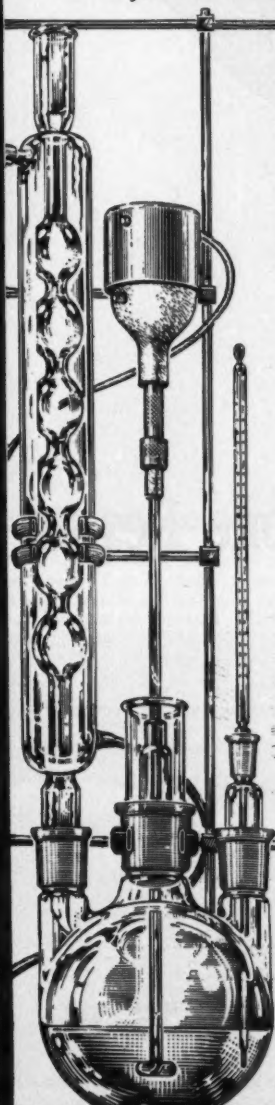
FATTY ALCOHOLS



DYTOL A-24
(n=9-15)

DYTOL B-35
(n=9-17)

DYTOL E-46
(n=13-17)



DYTOL fatty alcohols are useful as intermediates in the following fields:

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PHARMACEUTICALS—quaternary ammonium compounds

SURFACE-ACTIVE AGENTS—emulsifiers and detergents

DYTOL alcohols undergo many chemical reactions typical of alcohols, such as ethoxylation, sulfation, esterification, halogenation, dehydration, and oxidation to aldehydes and carboxylic acids.

TYPICAL PROPERTIES

	Dytol A-24 (lauryl)	Dytol B-35 (lauryl)	Dytol E-46 (cetyl-stearyl)
Alcohol Composition, %, determined by fractional distillation.			
Decyl C10	2.0	2.5	none
Lauryl C12	68.0	62.0	none
Myristyl C14	28.0	24.0	4.0
Cetyl C16	2.0	11.0	34.0
Stearyl C18	none	0.5	62.0
Appearance	water-white liquid	water-white liquid	white, wax-like solid
Hydroxyl number	289	289	213
Ester number	1.5	1.5	3.0
Acid number	0.5	0.5	0.4
Iodine number	0.3	0.3	0.8
Color (APHA)	25	25	50
Specific gravity	0.833 (25°C)	0.833 (25°C)	0.813 (60°C)
Melting point °C	20	21	51

Write Dept. SP for further information and samples. DYTOL is a tradename of the Rohm & Haas Company.

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The buyer of shoes looks for style, lightness, flexibility, comfort, waterproof protection and long wear!

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SPECIALTIES

Spreading in Specialties

In an industrial field characterized by a large number of relatively small manufacturers, R. M. Hollingshead Corp., Camden, N.J., is something of an anomaly. It's big—and it's getting bigger. In a far-reaching expansion program at three locations, Hollingshead plans to boost output; increase efficiency by streamlining its operations; pare its high distribution costs; broaden its manufacturing base by producing its own raw materials; and permit greater diversification in industrial specialties.

A large share of the program is concentrated at the Camden head-

quarters. Part of it is expansion pure and simple—a new wing to double the size of the inflammable mixing department; a new can line; a new lithographing press; new stainless-steel mixing tanks and outside storage tanks; new equipment for grinding and refining resins. But a significant part is aimed at improving over-all operations—an 18,000-sq.-ft. pilot plant; streamlined set-ups for processing, mixing and filling; and new research laboratories to intensify studies on nonflammable hydraulic fluids and industrial specialties and plastics.



THE TEAM: Sparking Hollingshead's plans are Executive V.P. Bagley, President Norton (seated, l. to r.), Board Chairman R. M. Hollingshead, Jr., Sales V.P. Severson, and Exec Committee Chairman Stewart Hollingshead (standing, l. to r.).

The remainder of the expansion is at points far removed from Camden. One is a \$1.5-million plant at Sunnyvale, Calif., 30 miles south of San Francisco. The other is an increase by one-third in the capacity of the Canadian plant.

Modern Times: The new research and development facilities point the directions of Hollingshead's thinking. A year ago the research staff numbered less than 25; today it's 40. The additional laboratories will enable Hollingshead to work on new formulations for modern needs.

While the research department will look forward to new products, the pilot plant will largely look backward to raw materials, will develop processes for their manufacture, both for the firm's own use and also for industrial sale.

Heretofore, too, it has been the company's practice to go from small laboratory batches to commercial manufacture of new products. But the specialties business, like most others, daily becomes more complex; the new facilities are expected to provide an easier transition for more complicated processes.

Also, the small-scale unit will enable the firm to turn out sample orders for the government without shutting down a commercial production line in the main plant.

Beating the Freight: The new California plant and increased capacity in Canada are also attuned to the modern tempo. Increased distribution costs have made centralized production of chemical specialties largely impractical, and the new plant will permit Hollingshead to tap markets in eleven Western and Southwestern states.



MIXING: Aislefuls of mixers make money out of . . .



. . . tankfuls of chemical raw materials.

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SPECIALTIES



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Under consideration but not yet crystallized are plans for a similar plant in the Midwest.

Young Men in a Hurry: Pushing these fast moves is a new management team of relatively young men. Wilbur Norton, president, is 49; he came to Hollingshead a year and a half ago from a vice presidency of General Motors. The top executives, promoted from within or brought into the corporation since, are all in the same age bracket or younger.

Not only are they overhauling their production, but they're also taking a new merchandising tack. The many trade names now used on automotive and household products—Whiz, Venus, Motor Rhythm, etc.—will gradually be played down, the Hollingshead name emphasized. Too many trade names are confusing, reasons Exec. Committee Chairman Steward Hollingshead, while the firm name itself is easy to remember and has a reputation of 60 years' standing.*

Tying in with the switch in trade-name emphasis will be an institutional approach in advertising and promotion. The Hollingshead name will be "sold" more nationally, while individual products will be pushed more locally—radio, television and newspaper advertisements.

Less Competition: "Cut-throat" is the only word for chemical specialties competition, and one reason for expansion into the industrial chemicals field, says President Norton, is that

* Since 1888, in fact, when the founder formulated batches of harness dressing on his kitchen stove, sold it to the carriage trade. He formally established the business in 1890 and moved into his first "plant"—a stable behind his house.

"this market is less highly competitive at present." Due for further emphasis, therefore, are such industrial specialties as hydraulic fluids, cutting oils, solvents, mold release agents, corrosion preventives, and strippable plastics.

Receiving much attention right now are the hydraulic fluids and strippable plastics. As new planes come off the drawing boards, hydraulic fluid specifications sharpen, and it takes a lot of intensive research to keep up with new demands. Cocoon plastics vaulted into prominence during World War II, when they were used to protect and waterproof military equipment.

To bring all these plans closer to realization, the company recently established a new subsidiary, Hollingshead Chemical Co., Inc., Wilmington, Del.

By these moves the firm, deeply rooted in the past, has taken a lease on the future of industrial specialties.

For the Birds

A chemical hotfoot that is strictly for the birds has brought new hope to San Franciscans in their long-enduring battle against pigeons.

The pigeon has long been the victim of a tug-of-war between bird lovers and sanitation experts. The problem: how to control him without hurting him.

He has had statutes written about him, he has been trapped, coaxed, frightened, and scolded by the mayor. Results: negligible.

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SPECIALTIES

Chemical Co. Owner Eric Livingston, a chemical engineer, three months ago got a job treating a downtown building for pigeons. He used Roost-No-More, a yellowish, toothpaste-like potion that is applied along ledges with a caulking gun. It is a compound of gelatin, glue and glycerine. The gelatin keeps it in shape, the glue gives the pigeon sticky feet, and the glycerine keeps the moisture content right.

Manufactured by National Bird Control Laboratories in Chicago, it was one of the few weapons not yet tried by San Franciscans. Maintenance crews at the Chamber of Commerce building, where it was first used, say 90% of the birds are gone.

The Crane company's newest contract calls for pigeon-proofing the downtown Greyhound bus depot. Weary of constant cleanup of sidewalks and vehicles, of avoiding lawsuits brought by customers whose luggage and persons have been bombarded, the Greyhound people have turned their problem over to Livingston.

No Fly-By-Night: Describing his company as "no fly-by-night outfit," Livingston would like to wait a year for conclusive results. Meantime, he is guaranteeing his work for a year. Barring abnormal wear and tear—too much dust settling on the substance or too many pigeons carrying it away on their feet, it will last longer than that, he believes.

Livingston, who has been in business in San Francisco for 10 years, hopes to see the mayor soon about a city contract.

"Pigeons might still show up on treated buildings," he says, "but you can be sure they aren't the same ones you saw before. One hotfoot is enough."

For the Soil: First tanks cars of a new type of fertilizer arrived in the Midwest last week. The new material, Sodan, made by the Nitrogen Div., Allied Chemical & Dye Corp., contains nitrate of soda. Developed as an easy-to-handle means of supplying extra nitrogen, Sodan is recommended for row crops, like corn, cotton, and vegetable, as well as for pasture.

Make It Last: Koppers Co. Inc. has laid plans for the 22nd of its wood-preserving plants, in Horseheads, N.Y. The facilities, for treating railroad ties, fence posts, and the like, will be designed to handle up to 20 million board feet annually.

Weld Aid: Solar Aircraft Co. (San

DESIGN and PRODUCTION NEWS

FOR CHEMICAL ENGINEERS

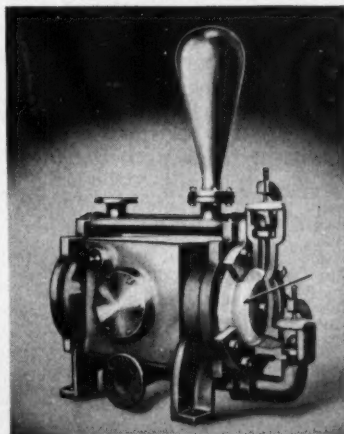
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August 1953

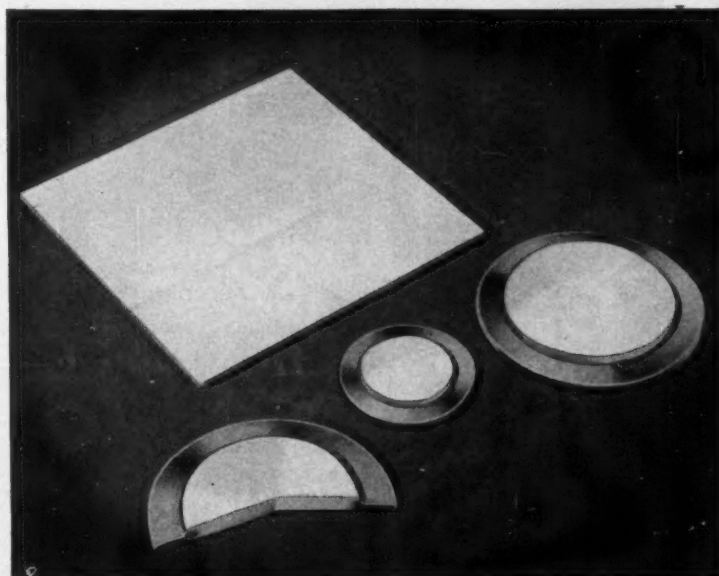
Rugged Diaphragm of Kel-F Pumps Abrasive, Corrosive Slurries at Uniform Rates... without Clogging

This widely-used positive-displacement pump now employs a diaphragm of plasticized Kel-F polymer, enabling it to handle corrosive and abrasive suspensions which previously made short work of rubber and other diaphragm materials. The reasons for specifying Kel-F polymer as the diaphragm material are many. The plastic's absolute chemical inertness allows the use of a single pump for many chemical pumping jobs. The high abrasion resistance and flexural strength of Kel-F permit the pump to work through countless flexing cycles in corrosive and abrasive mediums without erosion of the diaphragm. The plastic's remarkable "memory" prevents the diaphragm from permanently stretching out of shape thus maintaining constant pumping volume and capacity.

This special slurry pump is manufactured by T. Shriver and Company, pump specialists of Harrison, N. J. The company fabricates the diaphragm from sheets of plasticized Kel-F polymer supplied by the Reiss Manufacturing Company of New York, N. Y. Special thermal stabilization of the material, imparts unusual service life.



Refer to Report C-108



New Filter of Porous Kel-F • Allows Rapid Filtration of Fuming Nitric Acid, Corrosives without Contamination... Resists Tearing

The samples of chemical filters shown above can filter corrosives such as fuming nitric acid, aqua regia, alkalis and peroxides. And no matter what the corrosive is, it will not affect the porous plastic filter...nor will the filter contaminate the filtrate! It allows water flow at rates up to 100 gals./min. per square foot of filter area at a 10# pressure differential. Made of Kel-F tri-

fluorochloroethylene polymer, it will not only filter corrosive materials safely and efficiently, but will stand a lot of physical abuse as well. A tensile strength of 900 psi and an elasticity modulus of 18,000 psi gives this material excellent tear resistance and sufficient pliability for a host of commercial filtering applications.

The chemical filters of porous Kel-F illustrated, are produced by the Porous Plastic Filter Company (a Pall Filtration Industries company) of Glen Cove, N. Y. Pore size is maintained at 15 microns. Disc filters and corrugated high-area units arranged for pipe line use as well as square stock sheets are currently available. All filters may be obtained in $\frac{1}{16}$ " or $\frac{1}{8}$ " thicknesses, with the disc filters ranging from $\frac{1}{2}$ " to 12" in diameter, the sheets up to 24" x 24".

The versatility of Kel-F polymer properties permitted the development of an inert filter that not only resists chemical destruction but physical and thermal damage as well.

For complete information regarding any item mentioned in DESIGN AND PRODUCTION NEWS, ask for detailed APPLICATION REPORTS, write

CHEMICAL
MANUFACTURING DIVISION
M. W. KELLOGG



PULLMAN

Refer to Report C-105

KEL-F

KEL-F

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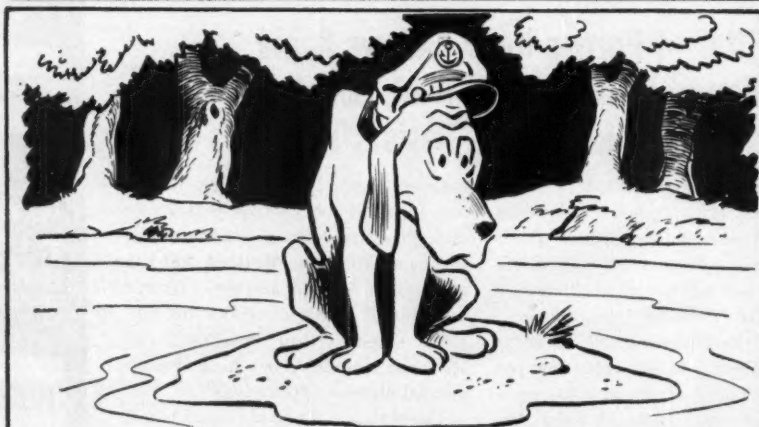
KEL-F



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62/63% K_2O
GRANULAR MURIATE OF POTASH
60% K_2O Min.
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& TRANSPORT CO.**

HOUSTON, TEXAS • ST. LOUIS, MISSOURI
2919 BUFFALO DRIVE RAILWAY EXCHANGE BLDG.

SPECIALTIES

Diego, Calif.) is introducing a new type of aluminum welding flux. The new product, Type 202, is said to permit the welder to see what he is working on, since it carries off the opaque slag blanket.

Nonsrinker: A new Australian process for shrinkproofing wool has now gone on a commercial basis. The process, called Si-Ro-Fix, makes use of a synthetic polyamide resin dissolved in methylated solvents. After the wool has been soaked in that bath, it is dipped in acid, which converts the polymer to a permanently adhering, insoluble form. Quantity required is about four percent of the goods' weight.

The process, which does not eliminate relaxation shrinkage, is claimed to increase resistance to abrasion and pilling. It can be applied to dyed material. Cost is about 18¢ per pound of wool.

Enamellers' Special: A new metal cleaner, specially formulated for use in the vitreous enameling industry, has been developed by the Detrex Corp. (Detroit). Described as a medium-high alkaline compound containing very high wetting and penetrating properties, it is tabbed Detrex 63, and is claimed to have exceptional ability to emulsify mineral oils and greases.

Roach Raid: U.S. Agriculture Dept.'s Ashley Gurney last fortnight warned of three new cockroach pests invading the United States. Fortunately, chemical insecticides seem effective against them.

Worst threat of the immigrant roaches is the Madeira roach, already well established in some Eastern seaports. It infests fruit stores and markets, and could be a serious pest.

The Mediterranean roach has also been found in the U.S., in the Cape Cod area. It lives outdoors, comes in at night, and may well spread over the U.S., though will not likely be a major nuisance.

Third roach is the grayish East African roach, which showed up recently in Florida. It's partial to warmth, may live in heated buildings in the North. It's already established in Hawaii, particularly around granaries.

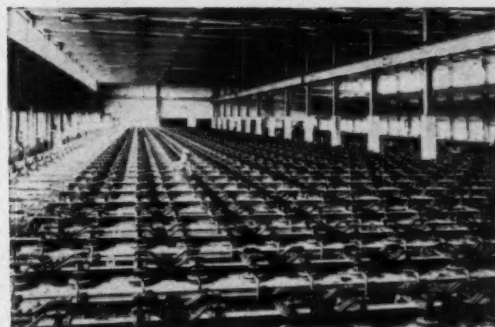
Versatile: Organic Products Co. (Irving, Tex.) is now selling a special stamp ink to adhere to metals, plastics, glass, paper, Silastic and rubber, fabric and a number of other materials. It's available in six opaque colors.



...and another **BLAW-KNOX Built** **CHLORINE PLANT** Goes "On Stream"

The latest Mathieson Mercury Cell plant to go "on stream" proves again the many advantages of using Blaw-Knox know-how in engineering and building these plants. This turn-key project is now exceeding the guaranteed performance. High purity chlorine and rayon-grade caustic soda are produced directly from the 23,000 amp. cells. Efficiency is high and operating costs are low compared with other processes.

Well engineered plants and simplified process design are the "hallmark" of Blaw-Knox projects in this field. If interested in the latest method of producing low-cost, high-purity chlorine and caustic soda, write for descriptive literature.



The new McIntosh, Alabama plant.

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DISTRIBUTION.

WHAT Sarasota, Fla., is to Ringling Bros. and Barnum & Bailey, a high-ceilinged, busy office in Manhattan's Grand Central Palace is to the chemical industry's biennial showpiece—the Exposition of Chemical Industries. In both cases, it takes a year-round effort on the part of specialists to put the show on the road. And this week the CW Camera takes a look behind the scenes, finds that the preparations for this year's 24th Exposition are particularly frantic—thanks to the fact that the November-December show will be staged in Philadelphia rather than New York—the first out-of-town engagement for the chemical-show exhibitors since 1919.

But despite the turmoil, Charlie Roth, manager of the exposition and president of the parent International Exposition Co., is convinced that benefits will result from the unasked-for move. Forced out of Grand Central Palace by a five-year lease given to the Bureau of Internal Revenue, the exposition managers are discovering that their alternate location—in Philadelphia's convention-holding Commercial Museum—is providing them with much-needed additional exhibit space and a more flexible floor plan. Other assets: convenient, in-the-building facilities for meetings, lectures and banquets; a one-story arrangement that is a welcome change from the Palace's four floors; and a less con-



CHANGE: Internal Revenue staffers, moving into the Palace, force . . .

The Greatest Show—In the Industry

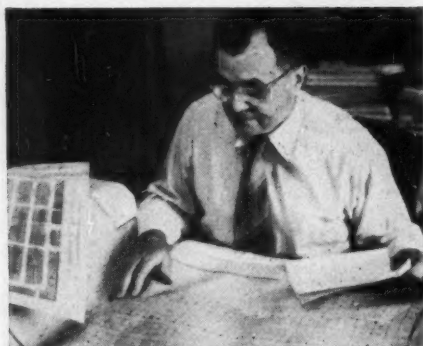


. . . the Chemical Exposition to move its show to Philadelphia.

gested shipping platform for the unloading and loading of exhibitors' equipment.

Double Rush: From a preparation point of view, however, this year's show has been put on twice. Last October—working well over a year in advance—Roth and his associates set the wheels in motion for a Palace-based 24th Exposition. Usual announcements were mailed to all previous exhibitors, giving them options to reclaim their former booth locations. When this delicate operation was over, invitations were extended to those additional companies that might want to be included. As usual, a waiting list of nearly 100 firms accumulated—those that couldn't be squeezed into the crowded Palace.

Then, early in December, the carefully laid plans were totally upset. The federal government announced



PLANNING: Manager Roth checks reservation letter against detailed floor plan.



DETAILS: Associate manager Stevens double-checks blueprints of exhibitor's booth.

that it was, this fall, taking over the entire exhibition area as office space for its scattered Internal Revenue Bureau, New York District. All shows scheduled after October, 1953, would have to find another home.

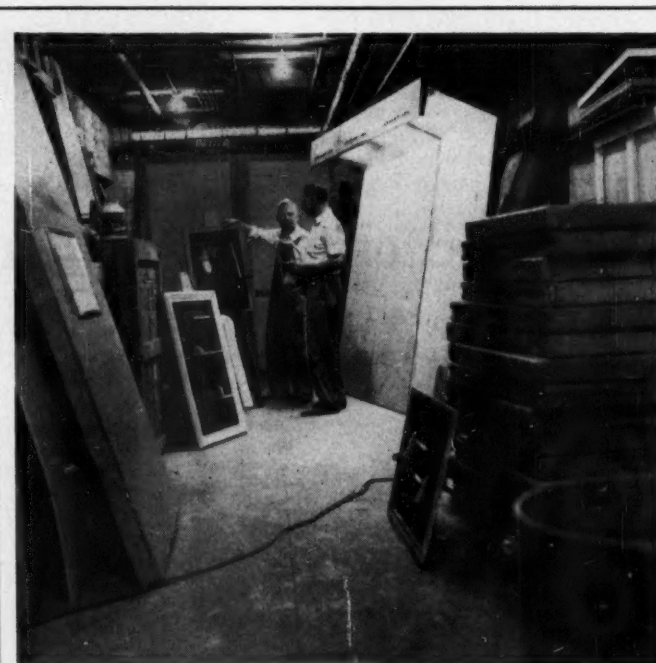
Fortunately, Roth had learned that this blow might fall and he had made preliminary arrangements with the Philadelphia Commercial Museum and Convention Hall—the only other completely satisfactory exhibition building in the East. By early February the staff was ready with new floor plans to take reservations from expectant exhibitors.

But this time precedent was no help in settling the critical problem of parceling out the hundreds of varying booth locations. Old-time exhibitors would have to guess on equal terms as to which locations would be most satisfactory. To be fair to all, Roth had to put the selection on a flat first-come-first-served basis. To keep the timing straight, separate mailings were made so that even the West Coast firms would receive their notices on the same day as those in the East. Each company was asked to make five or six selections, in order of preference.

The next ten days were pure bedlam. Roth, Earl Stevens, Charles Bruce, and other staff members sta-



STATISTICS: Attendance records of earlier shows are combed over by Mrs. Ruby Mabie. The results govern future strategy.



Also affected by move to Philadelphia is the separate but closely associated Manhattan Exposition Construction Corp. For decades—in this crowded Palace workshop—Charles La Rosa (right) and Donald Cameron have built custom-made booths, supplied standard backgrounds (rear) and railings for chemical-show exhibitors. They'll be temporarily in Philadelphia this fall, too.



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tioned themselves around a large diagram of the exhibition floor and battled the flood of telegrams, telephone calls, and special delivery letters.* When the tide subsided, it was clear that the 24th Exposition of Chemical Industries would be the biggest one held since Roth personally organized the first one in 1915.

Exchange: Actually, that original Exposition was in large measure the direct result of the American chemical industry's early wartime immaturity. Cut off from its older and larger German counterpart, the industry was struggling against the double problems of unavailable supplies and unorganized technical knowledge. Roth, a Standard Oil Company chemist, attended a round-table discussion on these problems at New York's Chemists' Club. When an industrial exposition was proposed as one way to foster the needed exchange of information, he joined the four-year-old International Exposition Co., and launched the experiment. Held annually from 1915 to 1923, the chemical show has been a regular biennial event ever since.

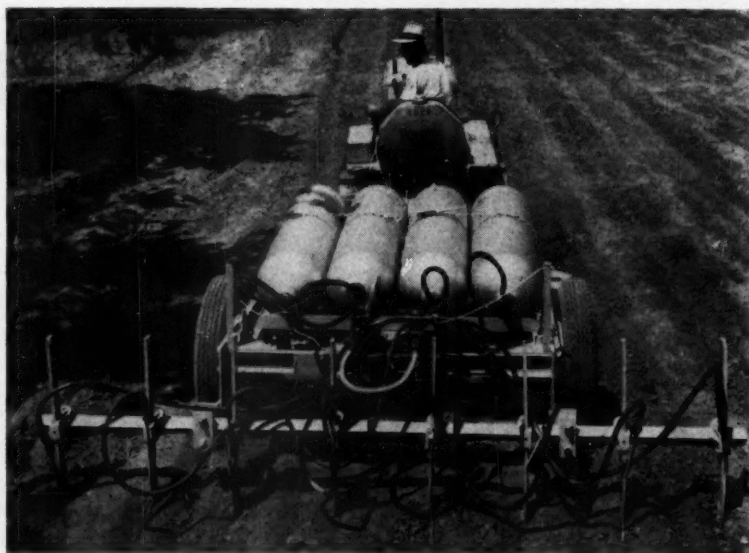
It has never, however, lost its close connections with the industry itself. A 17-man advisory committee—composed of industry executives, association presidents, technical consultants and editors—keeps the exposition close to its original objectives: to act as a clearing-house and stage for information on what's new in the industry. As show-manager Roth expresses it: "We're here to put on a show—with a purpose." And a mere move to Philadelphia—for all its complications—can't affect that intention.

Organizing a Boom

This is direct-application ammonia's year. Registering an increase of 51% over last year's record, the newer farm-chemical technique is swamping agricultural distribution men with opportunities—and problems. To capitalize on the one and eliminate the other, farm leaders have been fast organizing their forces. They've had the wholehearted cooperation of equipment manufacturers and ammonia makers. And an organizational meeting of Texan ammonia users on Texas A & M's campus this week is only the latest of a nationwide series held since early summer. Essentially, these efforts are today aimed at two primary goals:

- To promote the use of late-season

* Some Manhattan sales managers, unable to reach the exposition offices by phone, walked over to deliver their reservations in person.



AMMONIA SPREADS: Industry associations form to foster farm use.

ammonia injections. Seasonal sales—an inevitable headache in any agricultural distribution system—are especially troublesome for unhandy-to-store anhydrous ammonia.

- To coordinate the spate of state regulations governing the handling and use of anhydrous ammonia on farms.

Demonstrations: At the forefront of these drives is the three-year-old Agricultural Ammonia Institute, with headquarters in the Claridge Hotel at Memphis, Tenn. Sparkplug for the Institute is executive v. p. Jack Criswell, who reports to a 24-man board of directors representing ammonia producers, distributors, equipment and accessories manufacturers.

It was Criswell's group that staged the first major ammonia meeting this year—in the middle of July at the University of Missouri. Called a "Summer Short Course," the two-day session aimed at extending the use of late-season applications by asking that at least two men attend from each state: one to describe late-season experiments in his own area; the other, a researcher, to evaluate the reports from other farm sections. Despite the fact that only one month's preparation went into the meeting, over 300 farm experts attended.

Highlight of the "course" was a demonstration staged on short notice by four applicator manufacturers. Off-season conditions existed at the University's experimental farm—and the demonstrators had an ideal opportunity to prove their points on these critical questions:

- Would the standard cutters (see

illustration) dig uniformly into the hard ground?

- Would the injectors clog up?
- Would the ammonia seal in the comparatively dry soil?
- What was the effect on the maneuverability and speed of the tractor and rig?

On questions such as these lies the future of vast new direct-application opportunities, e.g., the preparation of pasture crops and fall plantings of oats and wheat. Gatherings similar to that in Missouri have since been held in Omaha, Neb., and at Purdue University, Lafayette, Ind.

And last week, summarizing the information gained at these meetings, the AAI started distributing a pamphlet that describes successful off-season applications in all parts of the nation.

Unification: Similar progress is also being made in the task of standardizing governmental regulations covering the handling of the ammonia itself. There is, of course, little disagreement between states as to the basic safety principles involved, but even minor differences in tank specifications, pressure limits, labeling, etc., can complicate the activities of producers, distributors and custom applicators who operate across state lines.

That individual state regulations can be confusingly varied is apparent in the variety of administrative bodies now in charge of regulating direct-ammonia applications in the five states that have thus far taken direct action. Here's the roster:

- Arkansas—Boiler Inspection Serv-

ice

Diethylthiourea





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DISTRIBUTION

- Georgia—Propane Commission
 - Louisiana—Anhydrous Ammonia Commission
 - Mississippi — Motor Vehicle Comptroller
 - Tennessee—Dept. of Agriculture
- Three additional states—Kansas, Pennsylvania and North Carolina—are reportedly on the verge of joining this list, but even these eight are just a small wedge of the 41 states in which anhydrous ammonia has become a factor on the farm scene and which might eventually decide to develop specific regulations covering its use.

To prepare for this flood of laws, the AAI has made common cause with the older, established Compressed Gas Association. A committee drawing members from both groups will meet this September in Chicago. Objective: to write a single set of standards that can be urged onto the American Standards Association—mentor for the Interstate Commerce Commission and most state legislatures.

Successful accomplishment of this goal would go a long way toward providing stability for the adolescent and still fast-growing direct-application industry.

Sales Changes

Recent moves on the industry's distribution scene:

- American Chemical and Solvents Co. (Providence, R.I.) has been appointed sales representative in the New England states for Refined Products Corp. (Lyndhurst, N.J.). Both companies deal primarily with textile chemicals.
- Koppers' Chemical Div. opened a new sales office last week in Atlanta, Ga. The office will service an 11-state area from Arkansas to Florida. Leo Diamond, formerly covering a New England sales district, will be the outlet's sales manager.
- Kenneth Steel, recently with the West Virginia Pulp and Paper Co., has formed his own sales company, K. A. Steel Chemicals, Inc., in Chicago. Among the products to be handled: tall oils, iron sulfates, and ammonium sulfate.
- Winthrop-Stearns has bought a new warehouse-office building in Evanston, Ill., to serve as an additional Midwest sales outlet.
- The Federal Supply Corp. (Paterson, N.J.) has created a corrosion resistance division to specialize in stainless steel and plastic products required by chemical process companies.

• **Directories:** Three new industrial di-

rectories have just come off the presses:

- The 1953-54 edition of the Connecticut Purchasing Guide—covering 2,800 manufacturers and 17,000 products—is available on request from Connecticut's Development Commission, State Office Bldg., Hartford, Conn.
- Not for free is the newest edition of the Chicago (Cook County) Industrial Directory. Gold-embossed and leather-bound, it is available at \$40/copy from Chicago Industrial Directory, Inc., 222 South State St., Chicago.
- Business Dictionaries Ltd. (133-137 Fetter Lane, London) is offering the 1953 edition of the 1,000-page British Empire Trades Index. Price \$5.

• **Carteret Growth:** The General American Transportation Corp. has laid the groundwork for the expansion of its giant Carteret, N.J., tank farm by buying the real estate and buildings of the nearby James B. Berry and Sons, Inc.

• **Freight Pillows:** B. F. Goodrich Co. (Akron) is now making inflatable pillows to prevent damage caused by cargo shifting. The cushions are made of its new plastic, Vulcafilm, a flexible film that can be electronically heat-sealed and is suitable for a variety of uses.

• **First Stop:** Morehead City, N.C., has now officially been added to the list of ports serviced by Dow's *Marine Chemist*. As predicted, it picked up a load of "spent" ethylene glycol from Du Pont's Dacron fiber plant at Kinston (CW, July 18). North Carolina port authorities hailed the stop as the beginning of a new sea-going trade based on the state's burgeoning textile industry.

• **Ambassador:** Smith, Kline & French, Philadelphia pharmaceutical maker, has amplified its south-of-the-border sales effort (through its Inter-American Corp.) by appointing a "Medical Director for Latin America." Dr. Eduardo Juliet—a Chilean physician with American training—will start his tour as "medical ambassador" by conducting a lecture series in several Latin American countries.

• **Another Step:** Direct-application ammonia on the farms (*see above*) looks like a particularly good bet to Chemical Enterprises, Inc.—a New York investment-consultant firm. It has added to its already sizable investments in this field by buying a large share of the Southeastern Liquid Fertilizer Co. (Albany, Ga.).



*Double your sales potential with detergent **ALKANE***

You have seen the rapid growth of detergents until today they account for 50% of consumer washing product sales. Leading soapers see an ever increasing share of the total market for detergents.

The future of your company may depend on your entering the detergent market now. And packaging detergents may be easier and less costly than you think.

(1) Oronite can now offer you Alkane—the basic raw material used in making the highest quality synthetic detergent products. It is available at a consistently low price to assure you a stable market price on your

finished product. Actually, during the past seven years, there have been many price decreases on Alkane because of expanding production and improved technology. Oronite Alkane is available in assured supply from three strategically-located bulk terminals.

(2) To assist you in determining your manufacturing costs, Oronite's engineering service has a plant design to fit your needs, can suggest which present equipment can be utilized, can provide equipment prices, performance data, yields—complete technical information to put you in a profitable detergent business at a minimum investment.



If you are interested in packaging detergents, or wish to see how economically you can convert your own operation, address an inquiry to any Oronite office. We will have a detergent engineer contact you.

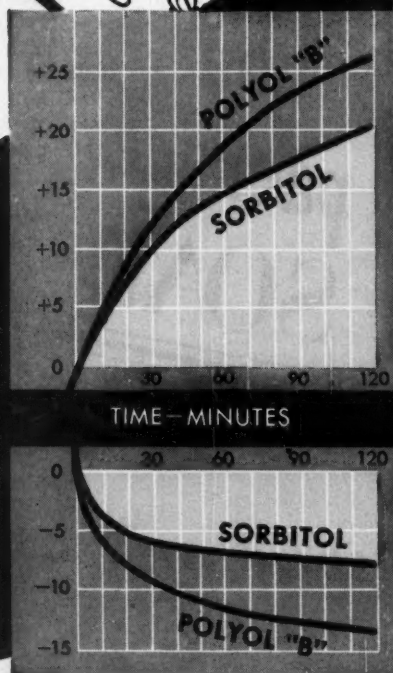
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Moreover, sorbitol has an exceptionally narrow humectant range, which means that it gains or loses less moisture when transferred from one humidity extreme to the other. All of which adds up to greater protection for the "factory-freshness" of products containing sorbitol... pharmaceuticals, cosmetics, foods, cork products, glue specialties or tobacco products, to name a few.

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In the face of general inflation, the price of sorbitol has dropped continually since 1947... while other polyols have fluctuated widely. This remarkable record has been accomplished through continued expansion and refinement of Atlas manufacturing facilities.

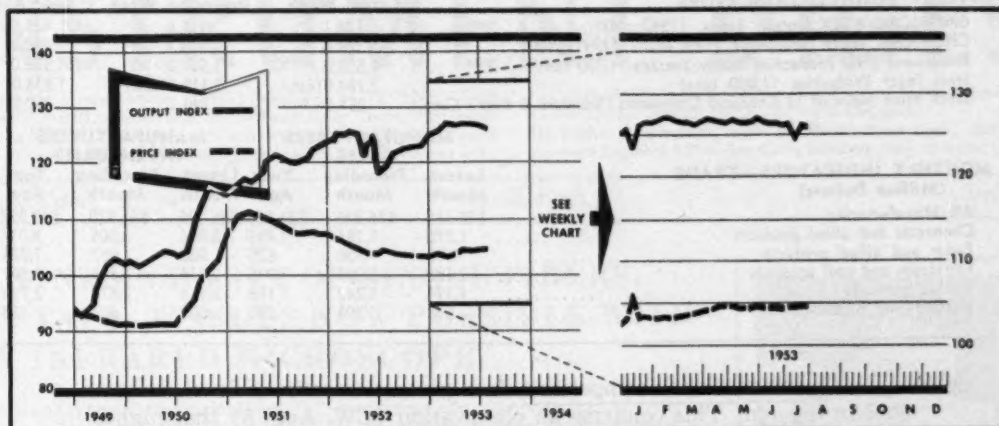
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MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

It's too early, of course, to determine exactly what effect the Korean armistice will have on chemical markets, but there's no doubt that some civilian customers—long lined up behind military buyers—are hoping to soon move closer to the counter.

Toluol users, however, may as well resign themselves to more months of fidgeting before they're able to get all they want. Word in Washington is that the Government will definitely continue to guard the military's lion-share of available toluene for TNT and avgas programs.

Though all consumers aren't paying the higher prices posted at some producing points (CW Market Letter, Aug. 8), chances are hikes in the works will wipe out existing price ranges at more sources.

Another coal-tar derivative, cresylic acid, is maintaining a favorable supply-demand status. Domestic producers aren't having any difficulty moving some of the higher-boiling products right along. If anything, some supply pinch spots are showing here and there. One reason: resin makers' demands have been pretty good.

On the other hand, ADF acid handlers say calls for their imported material reflect a lackadaisical note. While business is not too good at a rough 75¢/gal. price, some are hoping it will hold even at that level.

Plasticizer users this week are reaping the benefit of some rapid-fire tag changes. Last week's reduction of iso-octyl alcohol (down to 22½¢/lb. t.c.) is tied in with recent drops in dioctyl, di-iso-octyl phthalate prices. In turn, the former's cut caused an almost simultaneously announced 2¼¢/lb. slash of 2-ethylhexanol prices by major producers Carbide & Carbon and Tennessee Eastman.

Decyl butyl phthalate, too, is sporting a 2¢/lb.-less tag, with the tank car price established at 31¢; c.l., 32¾¢ and a penny higher than that for l.c.l. quantities.

With competition again rearing its head, some observers aren't too sure the plastic ingredients have yet reached a set level.

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.1	126.0	121.5
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.6	104.7	102.3
Bituminous Coal Production (daily average, 1,000 tons)	1,533.0	1,527.0	1,384.0
Steel Ingot Production (1,000 tons)	2,184.0(est.)	2,119.0(act.)	1,938.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	251.1	244.2	250.5

MONTHLY INDICATORS—TRADE (Million Dollars)

	MANUFACTURERS' SALES			MANUFACTURERS' INVENTORIES		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
All Manufacturing	\$26,118	\$26,226	\$21,888	\$45,496	\$44,970	\$42,892
Chemicals and allied products	1,773	1,781	1,495	3,086	3,005	3,011
Paper and allied products	741	708	625	966	987	1,028
Petroleum and coal products	2,188	2,061	1,945	2,814	2,803	2,607
Textile products	1,174	1,242	1,116	2,753	2,671	2,734
Leather and products	343	301	290	609	604	558

International competition has given domestic rosin a welcome shot in the arm. This confirms an observation (CW, Aug. 8) that higher-than-foreign prices—rather than a shortage of American dollars abroad—is behind dwindling export business.

Reports that French producers have upped their tags slightly over U. S. prices has foreign buyers here turning to domestic sources. Some American customers see in this a threat to their later-in-the-year requirements.

Not comforting either are dried-up Mexican import offerings—the season there is practically over—and a slackening of domestic production is soon due—for the same reason. Gum output here is now nearing its peak for the year, will then ease into the nonproducing months.

Some international bustling is also affecting this country's metals market. London's resumption of free trading in copper last week tripped prices there to a low near-27¢/lb. By week's end, however, schedules were up to a U. S.-equivalent price of 29¼¢, had most major domestic producers convinced that recent copper declines had skittered to a halt. They're holding a 30¢ price despite one custom smelter's 28½¢ tag.

Indications that Chile is backing down from a stubbornly held 35½¢ came last week with its offer to sell the U. S. some 65,000 tons at "world prices"; that would be about 28 to 29¢/lb. It's still a moot question whether or not the U. S. government will take the "bargain" for the stockpile.

There's no question, though, that lead users have eased up in their buying. This despite the increasing firmness of the London market. Not a few observers are predicting that the current 14¢/lb domestic price—which inched up to that level via two recent hikes—may soon slip. The drop-back may come later this month.

The present lithium tightness is behind Foote Mineral Co.'s deferment of its powdered bleach developments. Plans to revive the project—aiming toward consumer-marketing the bleach—are in the works—when and if there's a surplus of lithium.

CHEMICAL WEEK MARKET LETTER PRICE CHANGES—Week Ending August 10, 1953

DOWN

	Change	New Price		Change	New Price
2-Ethylhexanol, tanks, dlvd., E	\$.0225	\$.24	Cottonseed oil, crude, tanks,		
Ethylene dichloride, tanks, dlvd.	.01	.09	S E	.0025	.1375
Copper, chloride, crystals,					
bbls., works	.0125	.2625			

All prices per pound unless quantity is stated.

THE PERKIN-ELMER INSTRUMENT DIGEST

A condensation of some articles in the Summer issue of THE PERKIN-ELMER INSTRUMENT NEWS, a publication of The Perkin-Elmer Corporation, manufacturers of scientific instruments—Infrared Spectrometers, Tiselius Electrophoresis Apparatus, Monochromators, Flame Photometers, Continuous Infra-

red Analyzers, Amplifiers, Astronomical Equipment, Thermocouples, Lenses, Crystal Optics, Special Designs for the Government.

For further information, write The Perkin-Elmer Corp., Norwalk, Conn. Southern Regional Office: Lee Circle Building, New Orleans, La.

Norwalk, Conn.

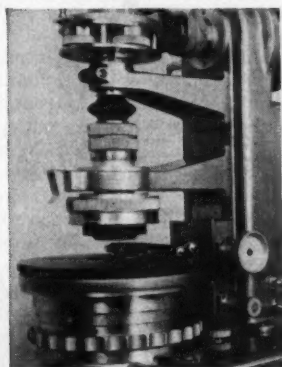
August, 1953

Vol. 4, No. 4

ROUTINE ANALYSES OF SINGLE FIBERS, CRYSTALS, TISSUES NOW POSSIBLE WITH NEW INFRARED MICROSCOPE

Natural and synthetic fibers, single crystals, tissue sections, bacterial cultures—all have been examined and have yielded excellent, reproducible infrared spectra by means of a new infrared microscope attachment for Perkin-Elmer Model 12, 112, and 13 Spectrometers. Useful spectra have been obtained with as little as 0.1 microgram of sample. The new microscope should find wide applications in crystal and fiber studies as well as in medical infrared studies.

● **Optical System**—The optical system of the Perkin-Elmer Infrared Microscope is composed entirely of reflecting elements so that it is free of chromatic aberration.



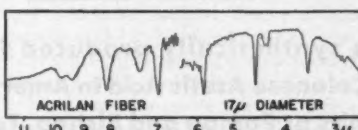
Infrared Microscope mounts on monochromator case.

In addition, the useful wavelength range is not limited by absorption in refracting elements. The Perkin-Elmer Microscope has been placed in the dispersed beam between the exit slit and the detector, thus avoiding the disadvantages of heat or photochemical effects on samples.

tochemical effects on samples.

The optical elements are mounted on a convenient and stable mechanical system. Focussing and locking adjustments are provided for the objective. Positioning of the sample is accomplished by coarse and fine focussing adjustments, rotation of the stage and *x* and *y* translation using a mechanical stage.

The microscope attachment is mounted on the monochromator cover. It is so



Spectrum of a single fiber of Acrilan.

designed that all the standard macroscopic functions of the spectrometer are preserved and the change from macro-operation to micro-operation may be made quickly. Access is provided for easy prism interchange. In addition, provision is made for flushing the optical path with dry nitrogen to reduce CO₂ and water vapor absorption.

● **Sample Area**—Because of the variety of factors affecting energy and their variation with the wavelength, no single minimum sample area can be stated as the limit even for a single instrument. It is possible to choose a set of reasonable operating conditions and find that the sample area required to pass an adequate amount of radiation throughout the infrared range is considerably larger than the ultimate limit on sample area which is imposed by diffraction. See spectrum of single fiber above.

A Society for Molecular Spectroscopists?

One of the main topics of conversation at the recent Columbus Symposium was the suggestion that a Society for Molecular Spectroscopy be formed. It was pointed out that molecular spectroscopists in the United States have no voice to speak for them either in international meetings or in dealing with other groups and societies.

Among the functions such a new society could well perform are:

1—Formalize spectral presentation—to

aid instrument users and manufacturers to standardize on common forms, and to aid publication of spectra.

2—Coordinate pure spectra programs—to aid publication of spectral data.

3—Further the use of spectrographic methods as standards.

That there is interest in such a group is evidenced by local groups in New York, Pittsburgh, Chicago and elsewhere throughout the country.



Infrared Spectra on IBM, McBee cards, or other special forms are readily recorded with the Model 21 Spectrophotometer by choosing the proper abscissa scale and reducing the ordinate with the balance control.

Perkin-Elmer to Hold Infrared Symposium in New Orleans

On October 21 to 23 Perkin-Elmer will hold an Infrared Symposium at its New Orleans offices in the Lee Circle Building. It is the first of what is hoped will be a series of meetings dedicated to the practical applications of infrared analysis.

This meeting will provide an excellent opportunity to meet infrared workers from the Gulf Coast area who have developed the art of routine quantitative analysis to its highest level of efficiency.

Papers will be presented both by Perkin-Elmer personnel and workers from Gulf Coast industry. The last day of the symposium will be given over to the monthly meeting of The Gulf Coast Spectrographic Society. Visitors from all areas are invited to attend the symposium. Those interested in attending may write to S. G. Linsley, Perkin-Elmer Corp., Lee Circle Building, New Orleans.

To receive 8-page INSTRUMENT NEWS regularly, mail the coupon below to:
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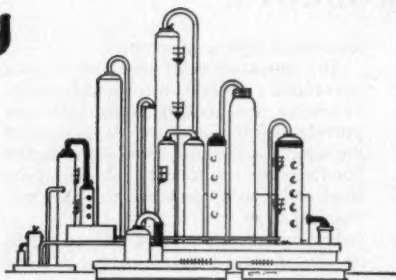
Why the Lacquer Industry
looks to Celanese for

n-PROPYL ACETATE

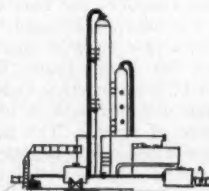
a basic story



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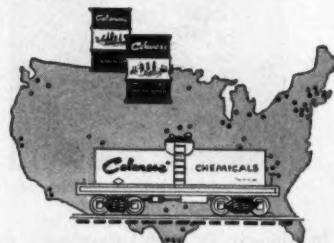


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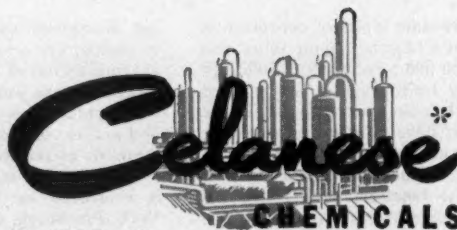
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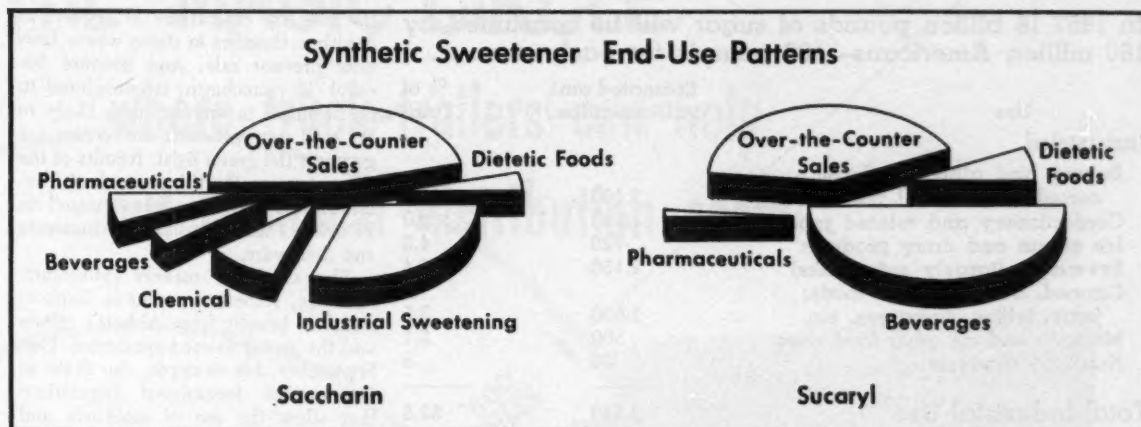


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Tempest in a Pop Bottle

Touched off by the soaring popularity of low-calorie beverages this year, a renewed struggle for sweetener sales is shaping up. The well-fattened market for the sugarless soda pop is, of course, the 30 million-odd obese adults in this country.

For years, and with increasing volume, insurance companies, medical authorities and dietitians have been drumming the dangers of overweight into the diet consciousness of our more corpulent citizens. Trading on the low-calorie, slim-waistline theme, a tremendous volume of advertising and promotion has been pumped into the metropolitan areas over the last few months. The reducing advocates' advice is apparently being taken to heart; there seems to be no other explanation of the phenomenal rise of No-Cal, Lo-Cal, Sugar-Free, Slim Line, Diet-Treet, Cal-Free drink sales from scratch to an estimated five million (24-bottle) cases in one short year.

But behind the facade of pop bottles, more fundamental battles loom (1) between the synthetic sweeteners and old-time natural heavy-weight sucrose and (2) between the two common synthetics, saccharin and Sucaryl, Abbott's sodium cyclohexyl sulfamate.

No Dent: As matters stand today, the sugar interests have suffered little if any loss of trade from synthetic sweetener competition. A recent estimate of consumption pegs 1953 as an 8-million ton year (*see table*), a close-to-9% jump over 1952.

The soft-drink makers have, if anything, outpaced this general sugar intake rise. Whereas 8.5% more soda pop was guzzled in 1952 than in 1951, sales promise this year to hop an additional 15 to 20% over 1952. And because the no-sugar varieties rack up a mere 0.6% of the total 1-billion-case stack of pop, their existence and growth can still be viewed by sugar makers as a relatively minor ripple.

Against the mountain of sugar, the total pile of synthetic sweeteners casts an insignificant shadow. Although official saccharin and Sucaryl figures are not available, a reasonable estimate of their magnitude can be made. Lumping together both synthetics, and taking into account their respective sweetening powers (400 x sugar for saccharin, 30 x for Sucaryl) their total equivalent in terms of sugar probably represents less than 500 million pounds of the natural product—a respectable volume surely, but a mere 3% of the sucrose market.

However, the sugar refiners, while taking the current synthetic inroads in stride, are not asleep to the longer-term implications of the non-sugar "dietetic" campaigns.

As insurance against future loss of business to synthetics, sugar makers' Sugar Research Foundation is:

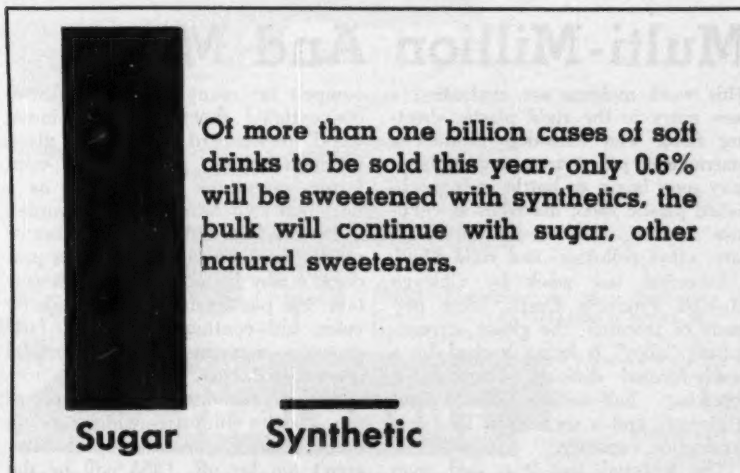
- Directing a \$600,000 fund for a big-scale rebuttal to the claims of non-sugar foods.

- Guiding association member "educational" advertising, pointing out that sugar—singled out as fattening—is, after all, no more calorie-adding than such publicly approved diet foods as tomatoes or grapefruit.

And only last week, Thursday, the directors of SRF voted to continue a \$27,000/year research project under the direction of Dr. Frederick J. Stare, nutrition department head at Harvard, to "discover whether or not non-nutritive sweetening agents are of value in reducing diets."

Diet Change: According to an SRF spokesman, Stare's results could go far toward changing present day thought on reducing diets, particularly with regard to "cutting down on sweets."

In a preliminary study recently completed on rats, Stare tentatively concluded that an important, probably the determining, factor in combatting the sense of hunger, is the



In 1953 16 billion pounds of sugar will be consumed by 160 million Americans—100 pounds for each one . . .

Use	Estimated amt. (millions of lbs.)	% of Total
Industrial		
Bakery and allied products: cereals and cereal products	2,130	13.3
Confectionery and related products	1,440	9.0
Ice cream and dairy products	720	4.5
Beverages (largely soft drinks)	2,150	13.4
Canned, bottled, frozen foods: jams, jellies, preserves, etc.	1,520	9.5
Multiple and all other food uses	500	3.1
Non-food products	80	.5
Total Industrial Use	8,540	53.3
Hotels, Restaurants, Institutions	1,300	8.1
Home Use	6,160	38.6
Grand Total	16,000	100.0

raising of the concentration of sugar in the blood.

Conclusions, if verified by Stare by way of his newly authorized studies on human subjects:

- When you're hungry, reach for a sweet (one containing sugar, of course).

- Sugarless drinks (and foods) serve no dietary purpose; the body still requires the same amount of food because it has not assimilated any sugar.

Quite understandably, the sugar suppliers are interested in establishing proof of Stare's hypothesis; such results (1) would remove the "fattening" stigma from sugar and (2) could lead to increased sales.

Synthetic Race: Meanwhile, riding high on the low-calorie beverage horse, Abbott, with its Sucaryl, appears to be enjoying a fast run. Two years ago virtually none of its sweetener landed in soft drinks; today close to half is probably consumed via the pop bottle.

In contrast, saccharin is running a poor second as a synthetic soft drink sweetener; one knowledgeable estimate pegs sales for beverage use at a slim 5% of all saccharin demand. Reason: state laws of long standing specifically prohibit saccharin in beverages and/or foods. Most of these regulations do not as yet mention Sucaryl.

At the time saccharin was first offered, it was seized upon by price cutting elements of the trade as a substitute for part of the sugar. Because it was economically attractive to make this adulteration, cut prices and unfair competition (from the non-adulterators' standpoint) resulted. To fight

this tendency, the non-price cutting members of the industry secured legislation in many states expressly forbidding the use of saccharin.

Today, with increasing public acceptance of sugar-free beverages, the soft drink maker in most states finds himself in the peculiar position of being unable to use saccharin in his products because of legislation passed years earlier with a different purpose in mind.

Sucaryl, coming on the market relatively recently (CW, Oct. 13, '51), is being used in many products under the general labeling provisions of the Food and Drug Administration.

Swingback: Doubtless nudged by the increased market possibilities of synthetic sweeteners in pop and dietetic foods, the restriction pendulum has been thrown into reverse in the past few months.

Abbott is reported to be presenting

the case for ethical use of Sucaryl to health authorities in states where laws now prevent sale. And because Sucaryl (like saccharin) is considered to be harmless in any amounts likely to be used, many health authorities are giving it the green light. Results of the campaign: so far this year, laws permitting its use have been passed in Florida, Massachusetts, Minnesota and Delaware.

The saccharin makers (Monsanto, Maumee, sometime-producer Lapaco) stand to benefit from Abbott's efforts and the swing toward synthetics. Last September, for example, the State of Connecticut formulated regulations that allow the use of saccharin and Sucaryl if the beverage is properly labeled. And in February, a bill was introduced in Iowa to remove the shackles from saccharin.

Bottling associations, while undisturbed at the progress of Sucaryl, are said to fear the return of saccharin; their concern is that the industry will revert to a state of price-cutting chaos.

A comparison of sweetening costs shows why:

- At about \$3.50/lb., the Sucaryl needed to sweeten a 16-oz. bottle of pop costs slightly more than the one cent's worth of sugar required.

- At roughly half the price of Sucaryl and possessing at least 10 times its sweetening power, saccharin in a soft drink costs about 1/2 as much as Sucaryl or sugar.

Fad or Future? With all these shifts in public fancy and state regulations, it's an open question how far and to what ends the trend in synthetic sweeteners will lead.

One observer, inclined to discount the future of low-calorie drinks, queried, "If the bottlers are so optimistic over their no-sugar pop, why do they fill it all into throwaway bottles?"

Multi-Million And More

This week molders are evaluating a new entry in the rigid plastic sheeting field. The extruded product—a marriage of polystyrene and rubber—may soon begin to battle such established plastic sheet materials as cellulose acetate, cellulose-acetate butyrate, ethyl cellulose, and rigid vinyl.

Unveiled last week by Chicago Molded Products Corp., after two years of research, the glossy styrene-rubber "alloy" is being backed by a newly-formed division (Campco), a spanking half-million-dollar plant (Chicago), and a six million lbs./year production capacity.

The material, too, it is said, may

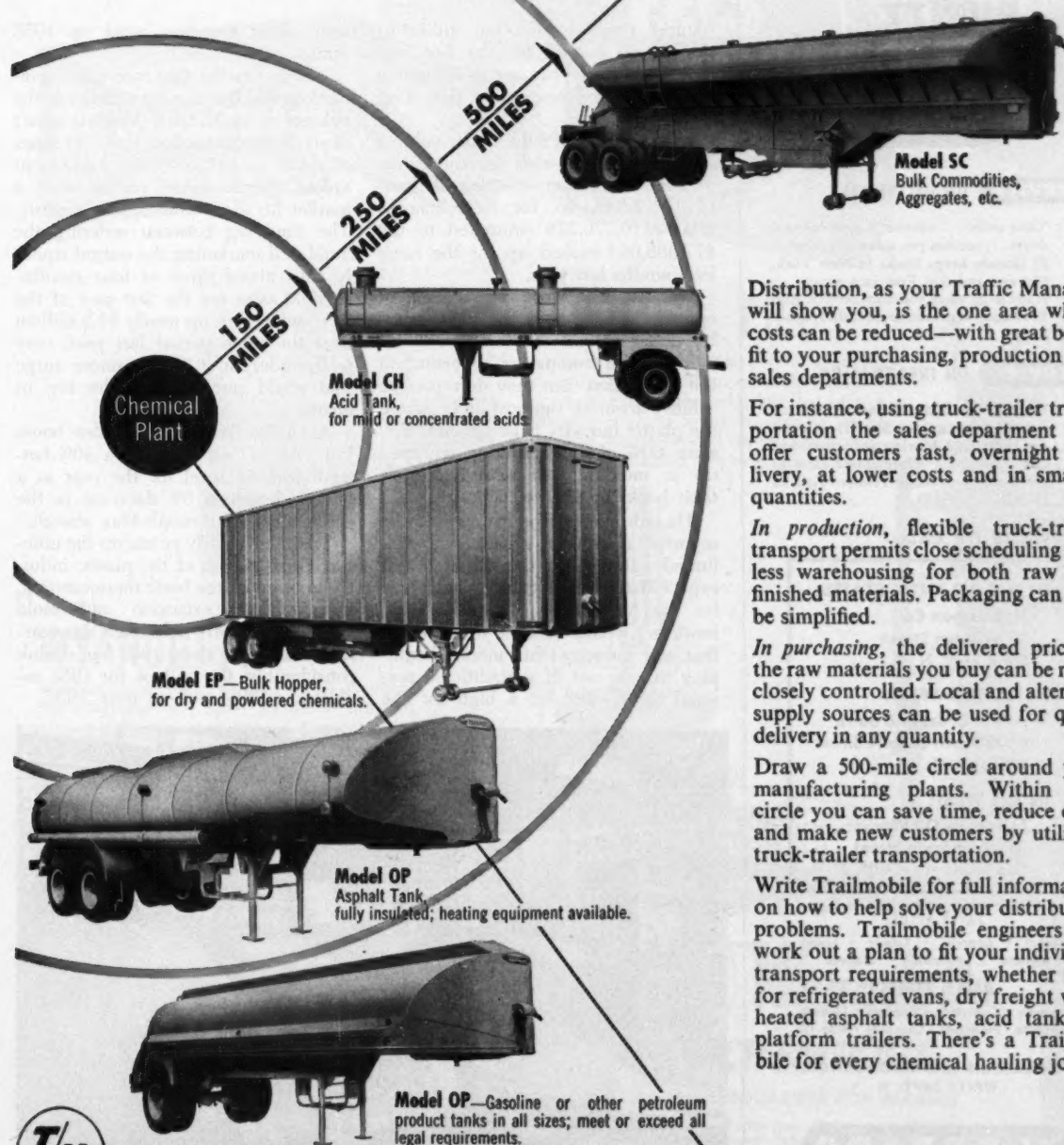
compete in many applications with conventional sheet steel, aluminum, wood, paperboard, fiberboard, glass, injection-molded plastics and even fabric—where the latter serves as a liner (car roof interiors, for example).

Up-Tracking Sales: But whether or not the new compound fulfills its producer's rosy hopes, this much is certain: the plastics industry—though 85 years old—continues to be a fast-growing segment of the chemical process industries.

And if economists of the Society of the Plastics Industry—which among other chores, compiles statistics—aren't too far off, 1953 will be the

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MARKETS

U. S. Plastic Sales

(In millions of dollars)

Year	Thermo- setting	Thermo- plastic	Extrusion	Molds	Totals	Up over previous year, %
1949	42.1	48.0	8.0	6.3	104.4	
1950	63.0	74.6	13.1	9.1	159.8	53.0
1951	79.4	81.3	17.5	9.6	187.7	17.4
1952	79.4	94.6	19.0	13.1	206.1	9.7
1953 (Est.)	95.2	113.5	22.8	15.7	247.2	20.0

biggest year of all. One indicator: sales gains scored for the first five months of this year are a whopping 40% over the comparable period of 1952.

According to SPI the dollar volume of the basic materials for the prime molding fields (thermosetting, thermoplastic, extrusion), for those months total \$110,870,378 compared to the \$77,388,064 racked up for the same five months last year.

Not All, But Most: These data, of course, do not reflect the total industry dollar volume; are based only on figures from companies reporting to the association. But they do represent a fairly accurate signpost as to where the plastic industry is going. Actually, some 60% of the U.S. firms wrapped up in molding and extruding bare their books to SPI's statisticians.

Though the prosperity tilt for the reported months is great, even confirmed optimists in the trade do not expect that rate of gain to hold true for the balance of the year. Most, however, would make a small wager that the industry—this month beginning to ease out of a traditional seasonal slump—will hit a high for the

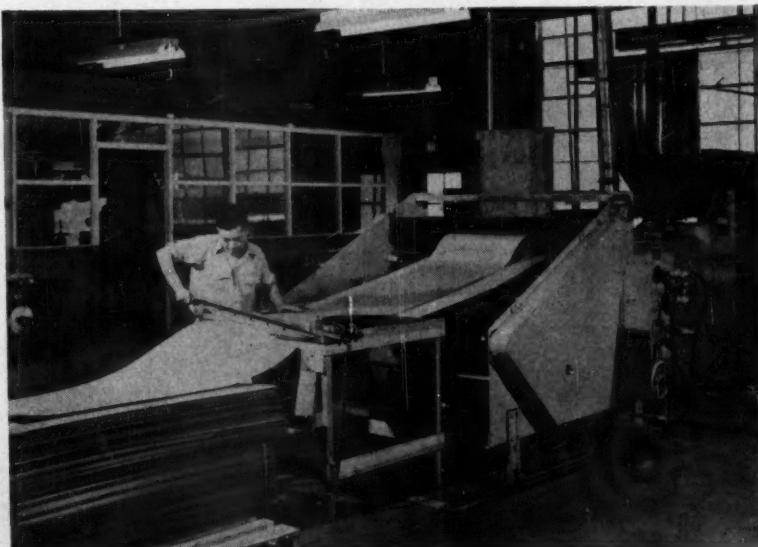
year about October, wind up 1953 with a new record.

Another factor that rose-colors predictions for the coming months is the volume of mold sales. Molders aren't likely to lay out round sums (at times as much as \$150,000) for equipment unless they're fairly certain that a market for the plastic products exists. The time lag between ordering the mold and marketing the output usually runs about three to four months.

Mold sales for the first part of the year, which are up nearly \$1.3 million over the same period last year, may well underpin a fall business surge that could put 1953 at the top of chart.

A similar late-summer sales boom last year helped establish a 10%-better-than-1951 level for the year as a whole—despite a 9% decrease in the earlier January-through-May stretch.

The table clearly points up the uninterrupted growth of the plastic industry in terms of the basic thermosetting, thermoplastic, extrusion and mold fields. Significantly, although the yearly rate increase since 1949 has shrunk considerably, the outlook for 1953 indicates a 20% pull-up over 1952.



PLASTIC "ALLOY": A new styrene-rubber sheet may add to burgeoning plastic sales.



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HAROLD G. PILE

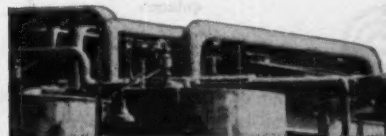
purchasing agent (with Fels & Company since 1903), has built an enviable reputation for maintaining fine relations between his company and its many sources of supply. Mr. Pile has depended on Wyandotte as a source for Alkalies for over 40 years.

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the starting material

is, by

converted to

which in turn is

to yield

of peroxide and

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In the

processes,

is dissolved in

in the presence of

and reduced to the hydro derivative

which is separated by

Next, oxygen is blown through at

to form peroxide and original reagent

Then, the peroxide is extracted with water and the is recycled.

weak (less than 10%) solutions

common (27.5%, 35%, 50%) commercial grades

barium oxide,

a bisulfate solution (ammonium bisulfate or sulfuric acid),

roasting in air

electrolysis,

barium peroxide

the persulfate

reacted with sulfuric

hydrolyzed and distilled

a relatively pure, aqueous solution

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barium sulfate

spent bisulfate for recycle.

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activated alumina

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filtration

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30-50 C

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50 C

30-37 C

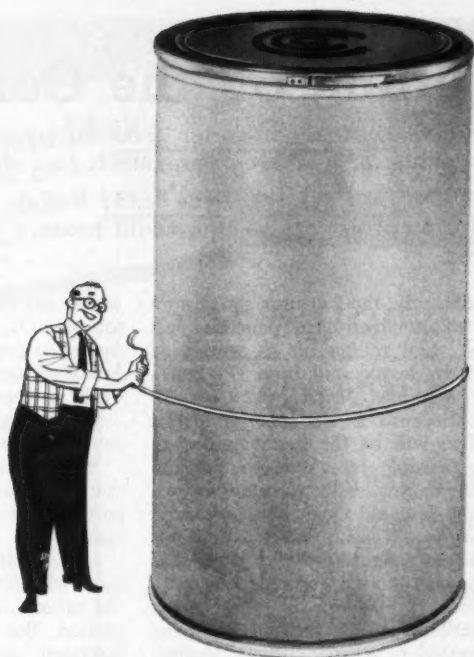
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quinone

azo

quinone

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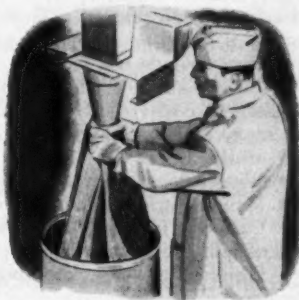
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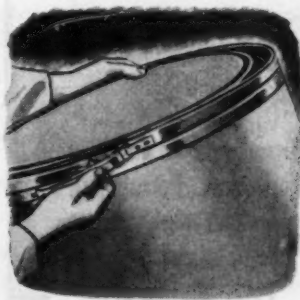
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PRODUCTION

Cutting off the Current

Multimillion-dollar race for practical nonelectrolytic production of hydrogen peroxide is just starting.

Du Pont takes the lead; Buffalo Electro-Chemical is coming up fast; Mathieson could prove a strong-running dark horse.

Significantly, the first tank car of non-electrolytic hydrogen peroxide last week went rolling on its way to a southern textile mill from Du Pont's new Memphis (Tenn.) plant—significant because if it's successful, this method will be the first non-electrolytic peroxide process to compete on equal footing with electrolytic oxidation. It could mean lower peroxide prices, would mean that peroxide producers no longer need seek plant sites with near-by inexpensive electricity sources.

But Du Pont isn't the only company interested in current-cutting. Mathieson tried it earlier, decided it was impractical. I. G. Farben took a turn, succeeded. Buffalo Electro-Chemical has patented one non-electrolytic approach, is looking closely at another. Shell Chemical and Pennsalt are critically eyeing them all.

Whatever the eventual outcome, the process industries will be watching and waiting with more than casual interest; for hydrogen peroxide is a large-volume chemical. And textile bleaching, while always a large consumer, is only one of many applications that include use in:

- Rocket and torpedo propulsion, jet assist take-off (JATO) units, climbing or accelerating aids for airplanes and missiles.
- Bleaching of pulp and paper.
- Manufacture of other peroxides.
- Carroting of fur in the manufacture of felt.
- Disinfecting and cleaning of wounds.
- Foaming agents (e.g., in the production of foam rubber), mouth washes, laboratory reagents, antichlor agents for use in swimming pools.

Peroxide Past: Climaxing many years of off-again-on-again international research, this shipment of non-electrolytic hydrogen peroxide is not, however, the first commercial attempt to rid peroxide production of its dependency on sometimes costly, sometimes undependable, sometimes hard-to-get electricity.

In the early 1940s, Mathieson made hydrogen peroxide for 18 months using the para-azotoluene process (see box). Sodium amalgam, in a rocking (Castner) mercury cell, reacts with water to produce nascent hydrogen,

which reduces azotoluene to hydrazotoluene. Oxygen is blown in, forms hydrogen peroxide with the previously added nascent hydrogen. The peroxide is then extracted with water.

Output was sold to textile mills caught in the wartime peroxide pinch.

But the amalgam reacts with difficulty; hence the Castner cell proved costly and inefficient; production ceased.

Later, with the introduction of the more efficient stationary mercury cell, the process could have been fully exploited. But Mathieson management hesitated, mothballed the operation. Presently, says Mathieson, plans for non-electrolytic peroxide production are in abeyance. However, Mathieson's two new caustic-chlorine plants (Saltville, Va., and MacIntosh, Ala.) are equipped with stationary mercury cells, could go into peroxide production on short notice.

More Deadly Game: At one time, during World War II, peroxide production took on a grimmer aspect. Germany needed ever-increasing amounts of hydrogen peroxide to power its destructive V-1 ("buzz-bomb") and V-2 rockets. I. G. Farben went to work, perfected an anthraquinone process (see box) for its Ludwigshaven plant which eventually was producing a metric ton a day (100% basis) of peroxide before being bombed out.

Similar in principle to Mathieson's process, the Farben method hydrogenated 2-ethylantraquinone to 2-ethylhydroantraquinone. Oxygen, again, was used to combine with the added hydrogen to form the peroxide which was then extracted with water.

After the war, U.S. technical missions ferreted out German know-how, made it available to interested American firms. Du Pont, for one, was interested, added its own improvements (see box) aiming at increased yields and concentrations, reduced fire hazards and toxicity. Du Pont placed the process in operation at Memphis. Initial operational difficulties are reported, but insiders feel that these are natural enough in any new production and will soon be worked out.

Du Pont's patented variation uses a mixture of alkylated and tetrahydro alkylated anthraquinones, a solvent

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mixture of primary or secondary nonyl alcohols with mono- or dimethylnaphthalene. These solvent mixtures have high boiling points and low vapor pressures, which tend to reduce the fire hazards and toxicity of the operation. In addition, the solvents have favorable hydrogen peroxide distribution coefficients which aid in extracting the peroxide from the solution. And an important, if unexpected bonus: the anthraquinones are highly soluble in both types of solvent.

While sticking with electrolytic oxidation for the present, Buffalo Electro Chemical was also particularly interested in the German anthraquinone process, has gone so far as to patent its own version (*see box*).

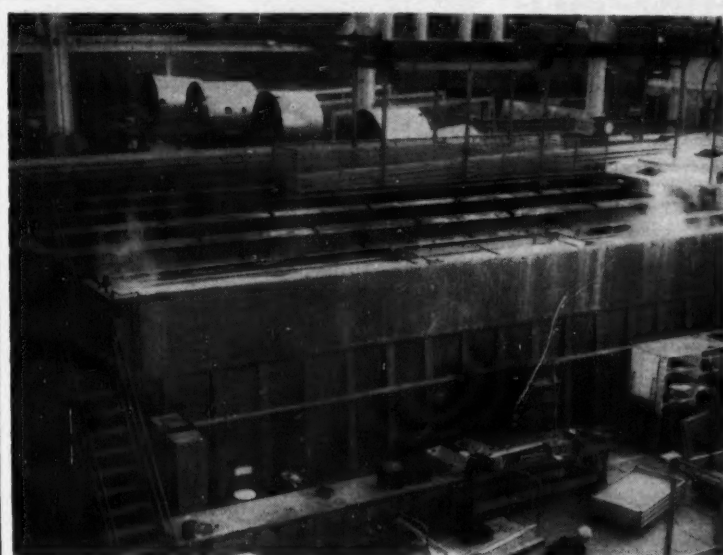
Becco's improvement lies principally in the solvent medium. Use of a trisubstituted organic ester—alkyl, aryl or mixed alkyl-aryl ester—of phosphoric acid, Becco feels, facilitates the operation. Solvents such as tributyl

phosphate, trioctyl phosphate or diphenyl cresyl phosphate are suggested by Becco in British Patent No. 671,524.

Reportedly pilot-planting more than one non-electrolytic method for the past two years, Becco won't comment at length on an alleged corrosion-caused shutdown in pilot operations, says only that it is "... not necessarily true that shutdowns were caused by corrosion ... One purpose of pilot-planting is to test and investigate new equipment to find the most suitable."

Others casting a long critical eye at new non-electrolytic processes are Pennsylvania Salt and Shell Chemical. Pennsalt, a large peroxide producer, like Shell, a large consumer, is interested in any process that could lower the price.

But Shell feels its position has been misinterpreted. Its only interest, it says, stems from its position as a large, steady consumer, and not from the



Big Enough for Paul Bunyan

ANOTHER AVIATION FIRST, says Lockheed Aircraft Corp. (Burbank, Calif.), of its new \$165,000 outside chemical bathtub. Big enough to dunk the largest airframe part ever built, the nine-unit processing tank is being used in the preparation and cleaning of aluminum surfaces prior to painting.

An outgrowth of Lockheed's switch from electrolytic to chemical surface treatment, the new equipment replaces two chromodize-anodize systems, is claimed to be

more efficient and economical. Metal processing time is cut in half.

Briefly, the new iridite process deposits an iridescent chemical film on aluminum parts by simple immersion in a chemical bath. The older anodize method oxidized the aluminum surface through electrolysis. And, declares Lockheed, the new process provides a better base for paint adhesion; an iridite surface is tough and pliable, whereas an anodized surface is hard and brittle.



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PRODUCTION

classified work the company carried on for the Navy.

Process Pay-off: Beneath all variations on this non-electrolytic theme, it appears as though the modified anthraquinone operation will be the first slated for full commercial exploitation. And while credit for its development must be widely shared chemical men aren't seeking any kudos; their pay-off will be a \$12-million peroxide purse. In case of urgent defense needs, too, they'd be ready with the goods.

EQUIPMENT

Rubber Geriatrics: A new laboratory device for the artificial ageing of rubber has just been developed by Mast Development Co., Inc. (Davenport, Ia.). The Weatherometer combines an ozone generator and control unit, said to artificially age rubber one year in one day.

Surface Briefs: American Metaseal Manufacturing Corp. (West New York, N.J.) has just developed a new metal surfacing technique for reducing friction, dissipating heat, and improving appearance. Tagged Metablast, the process involves shooting a liquid-suspended abrasive against a metal surface. This produces many minute pits, size of which can be varied by changing the abrasive used or by the spray's length, force or direction. Tolerance of precision parts can be maintained to 0.0001 inch, says the firm.

• One of the first successful methods, as described by Union Carbide and Carbon Corp. (New York), for applying ceramic coating to commercial nickel has been developed at the Oak Ridge National Laboratory (run by Carbide for the AEC).

Briefly, nickel is annealed in water-saturated hydrogen at 1,000 F, sprayed with NBS ceramic coating A-418, dried and fired.

Significance of this development is that nickel, a refractory metal possessing excellent thermal conductivity characteristics but heretofore limited in high temperature use because of poor oxidation resistance, may now find application in jet engines, gas turbines and guided missiles.

• **Pulp Polisher:** The Dorr Co. (Stamford, Conn.) is now marketing a Dorrco white liquor polishing station. For use wherever pulp brightness is desired, the unit employs vertical pressure polishing filters to remove colloidal impurities too fine for gravity settling.

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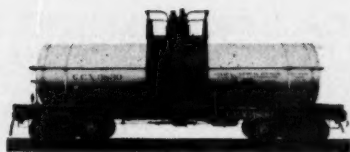
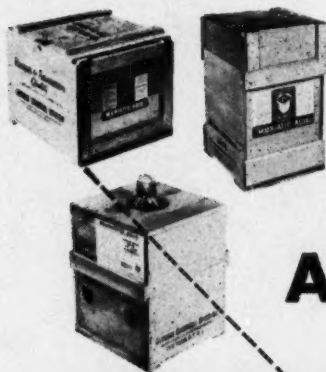
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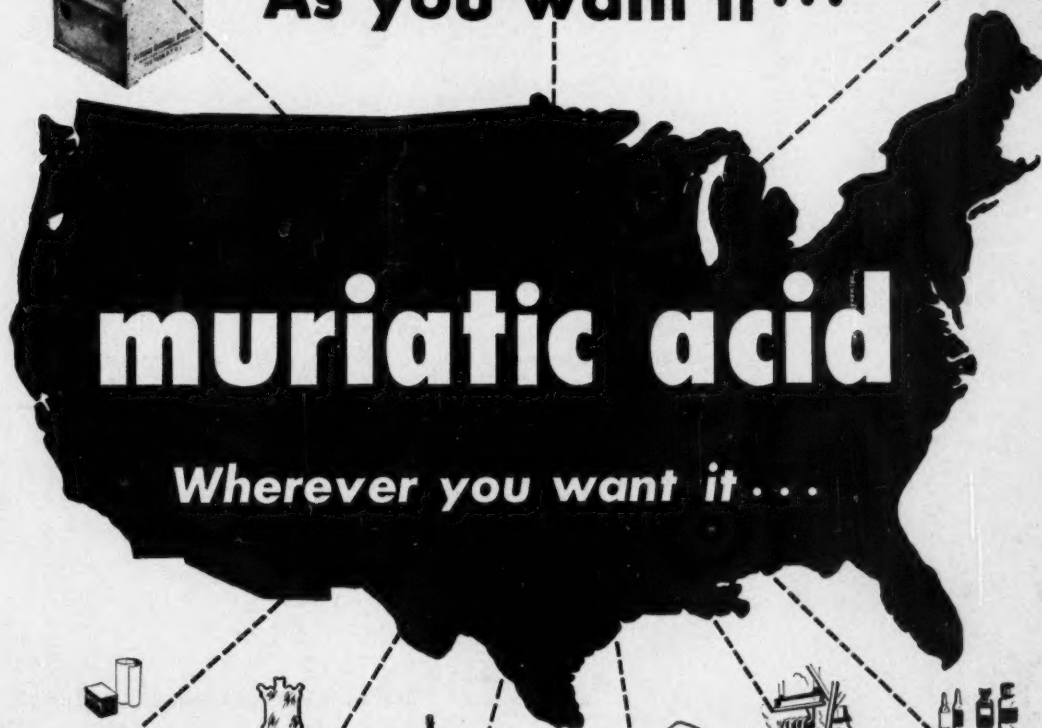


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